



**COST ACCOUNTING PRACTICES - A COMPARATIVE
STUDY OF SOME SELECTED COMPANIES
IN INDIA AND JORDAN**

ABSTRACT

THESIS

SUBMITTED FOR THE AWARD OF THE DEGREE OF

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ABSTRACT

Cost accounting is a tool of management that is used for control and supervision of manufacturing, distribution and administrative activities. As a function of management, cost accounting provides proper classification and sub-division of cost and help in control of materials and supplies; wages and overhead; establishment of standards for measuring efficiency; and budgeting and accumulation of data as an aid to price determination. The objective of cost accounting is to ascertain the cost of products by a methodical system of accounting.

The study of cost accounting has emerged as an important area of research and investigation as it helps in the evaluation of operating efficiency of the enterprises and guides management in cost reduction and control. Out of many reasons for undertaking this study, one is to identify the nature, types and significance of cost accounting systems in order to find out the status, features, strengths and weaknesses in the system of both the countries India and Jordan. An appropriate cost accounting system must direct the managers towards the achievement of goals and objectives effectively and efficiently. The system should also provide for appropriate evaluation of measuring the operation efficiency and performance evaluation. It is therefore, necessary to study and compare the cost accounting practices of some selected companies of India and Jordan to find out any deficiency in the existing system and to recommend certain measures to improve efficiency.

Objectives of the Study

After a thorough review of the literature on cost accounting practices the following specific objectives were laid down for the study.

- 1. To study the cost accounting systems adopted by the selected industrial enterprises of Indian and Jordanian companies.**
- 2. To compare the application of cost accounting system within a**

particular industry in both countries.

3. To evaluate the application of these systems within a particular industry in both countries.
4. To differentiate industry, sector and country-wise costing systems and evaluate them for application.
5. To outline the specific actions and adjustments in cost accounting practices and procedures in order to improve the situation.

Sample Selection

This study is based on case method of research. Ten companies covering both private and public sectors have been selected from three industries such as cement, paper and chemical and fertiliser from both India and Jordan for intensive study. The enterprises which are based on local raw materials, economically important and provide huge direct and indirect employment have been selected for the study. Attempts have been made to select large scale enterprises from respective industries in both the countries that are occupying dominant position in respective industrial sector in those countries.

Data Collection and Analysis

Both primary and secondary sources of data have been used for the study. A questionnaire was designed for collecting primary data which was administered on higher level executives related to the practice of cost accounting in their organisations. The cost accounting practice of the individual company has been analysed and a consolidated analysis has also been made industry-wise in respective country. This has been made to have an idea about CAP in respective industrial sector as well as to facilitate comparison of CAP among the enterprises of respective industry of these two countries.

A comparison of CAP has been launched among the cement, paper

and chemical and fertiliser companies of India and Jordan separately. The strengths and weaknesses of CAP have been presented separately.

SUMMARISED FINDINGS

The findings of the study are presented briefly under four categories as per the objectives laid down:

A. Findings Related to Fertiliser and Chemical Industry of India and Jordan

- 1 The fertiliser companies under study in both countries have maintained cost sheet to ascertain the cost of products for a particular period of time. They also classify the elements of cost sheet as prime cost, factory cost and cost of production.
- 2 The private and public sector fertiliser companies of both countries use integrated cost accounting system for maintaining cost books for all plants and units operating under them. They also use absorption costing as technique of costing. But they do not use activity-based-costing or marginal costing.
- 3 The public sector fertiliser and chemical companies in both countries use fixed and variable cost as a basis of cost classification, whereas private sector enterprises use direct and indirect cost for the purpose. The public sector in both countries use more than one basis for cost classification. In public sector fertiliser enterprises of Jordan direct and indirect cost is used as a basis in addition to fixed and variable cost, whereas in India revenue and capital expenditure is used as a basis in addition to fixed and variable cost. The private sector fertiliser enterprises in India also use more than one basis for cost classification, i.e. direct and indirect cost in addition to fixed and variable cost.

- 4 The sampled private sector fertiliser companies of both countries apply the estimated rate per unit as a basis for absorption of selling and distribution overhead. The private sector companies in Jordan consider prime cost as a basis and their Indian counterparts consider estimated unit cost as a basis for factory overhead absorption.
5. Public sector fertiliser companies in Jordan use prime cost as a basis for factory overhead absorption and the ones in India consider estimated unit cost.
6. The public sector fertiliser enterprises in Jordan consider percentage on selling price per unit as a basis for absorption of selling and distribution overheads, but in India the estimated rate per unit is adopted for this purpose.
7. In case of indirect cost allocation, private sector in Jordan considers cost of material consumed as a basis, but in India both the direct allocation method and the machine hours worked were used as a basis. The public sector fertiliser companies in Jordan use direct allocation method as a basis for indirect cost allocation, but in India the cost of material consumed is used for this purpose.
- 8 The public sector fertiliser industry in both countries treat overtime wages by charging it to factory overhead account. However, the private sector fertiliser industry in Jordan treat overtime wages, as well as idle time by charging it to factory overhead accounts.
9. The abnormal loss of material are charged differently in public sector fertiliser companies but same treatment is made in private sector. The private sector fertiliser companies in both the countries treat the abnormal loss of material by charging it to cost of production account, but the public sector fertiliser

enterprises of India charge abnormal loss of material to profit and loss account and those in Jordan to cost of production account.

10. The private sector fertiliser companies in both countries use ABC analysis for the purpose of inventory control. In case of public sector fertiliser industry of Jordan, perpetual inventory system is used. The companies in India on the other hand use ABC analysis for the same purpose.
11. This system more suitable because, it helps in avoiding dislocation of production, preparation of periodical profit and loss account and balance sheet. It also helps to keeping the accurate and up-to-date, records.
12. All the sampled companies in both countries are using material issue analysis sheet for showing the value of material consumed during the production period with the exception being the private sector fertiliser enterprises of India.
13. For the purpose of pricing input material, public sector in Jordan considers average price method, whereas in India it is "cost-price-of-each-lot" method. Moreover, private sector fertiliser industry in Jordan takes into account cost price of each lot as a method of pricing input material, whereas in India, the average price method is considered for the same.
14. The companies under study in fertiliser industry in both countries apply budgetary control technique and prepare different types of budgets related to raw material, labour and overheads. Both the sectors of fertiliser industry apply flexible budget method as a basis for drawing various budgets except private sector in India use fixed budget method.
15. Public sector companies in both countries apply past record as a basis for setting material standards, union contracts for setting

labour standards and future trend of prices for setting overhead standards.

16. The public sector companies in Jordan considers more than one basis for setting overhead standards like normal operating conditions and past records. In the case of setting labour efficiency standards, public sector in Jordan applies past performance records as a basis whereas its Indian counterparts consider time and motion study for the same purpose.
17. The private sector companies of fertiliser industry in both countries use the normal operating conditions and the past experience as a basis for setting labour standards, overhead standards and past performance record as a basis for setting labour efficiency standards. But in case of setting material standards, private sector fertiliser companies in Jordan takes into account scientific computations as a basis and those in India consider past records as the basis. The private sector companies in India also consider past record as the basis besides normal operating conditions for setting overhead standards.
18. The public sector companies of fertiliser industry in both the countries calculate same type of variances related to raw material such as material price, material quantity and material yield; variances related to labour such as labour mix variance and labour rate variance and variance related to overhead like capacity and efficiency variances. As far as sales variances are concerned, the companies under study in both countries use the same variances like sales volume and sales price, but the periodicity of variance calculation is quarterly.
19. Private sector fertiliser industry in Jordan consider different type of variances related to labour like labour mix, idle time and labour rate variance but those in India consider only one type

of variance known as labour mix variance. Sales mix variance is calculated only in private sector in Jordan and not in India. The variance calculation period in private sector in Jordan is half yearly and in private sector in India it is monthly.

B. Findings Related to Paper Industry of India and Jordan

- 1 The companies of paper industry under study in both countries prepare cost sheet with its main elements being prime cost, factory cost, work cost and cost of production.
- 2 The companies under study in both countries maintain an integrated cost accounting system for keeping cost books. They use absorption costing as a technique of costing. But they do not use activity-based-costing technique or marginal costing.
- 3 The public sector companies in both countries use the fixed and variable cost as a basis for cost classification. The private sector companies in paper industry in Jordan apply fixed and variable cost as a basis for cost classification, but those in India apply functional classification.
- 4 The private sector companies in Jordan use direct material cost as a basis for factory overhead absorption, but in India machine hours are used as a basis. The public sector paper industry in Jordan and India apply direct material cost as a basis for overhead absorption.
5. All the sampled companies in both sectors in Jordan use direct allocation method as a basis for indirect cost allocation while those in India consider the cost of material consumed as a basis.
6. The private sector paper industry in both countries use estimated rate per unit as a basis for absorption of selling and distribution overheads. Moreover, the private sector paper industry in India uses another basis known as percentage on work cost for

absorption of selling and distribution overheads. The public sector paper industry in Jordan use estimated rate per unit as a basis for absorption of selling and distribution overhead but those in India use percentage on selling price for the same.

7. Public sector paper industry in both countries treat the idle time by charging it to the factory overhead account. The private sector paper industry in both countries treat abnormal loss of material by charging it to cost of production account, whereas the public sector in both countries treat abnormal loss of material by charging it to profit and loss account.
8. The paper companies under study in Jordan treat overtime wages by charging it to the factory overhead account but those in India charge it to profit and loss account. The idle time is charged to factory overhead account in private sector companies in Jordan and to profit and loss account in India.
9. For the purpose of inventory control, public sector paper industry in Jordan uses two bin card system and those in India use ABC analysis technique. The private sector companies in Jordan consider ABC analysis as a technique for inventory control while those in India consider Economic order quantity (EOQ). All the sampled enterprises in paper industry in both countries maintain material issue analysis sheet which show the value of material consumed during the production period.
10. For the purpose of pricing input material, public sector consider average price method in Jordan and cost price of each lot in India. The private sector in Jordan consider average price method. Those in India consider market price method as a method of pricing input material.
11. All the companies under study in paper industry in both countries use budgetary control technique and prepare various types of

budget such as raw material budget, labour budget, overhead budget. All of these budgets are prepared on the basis of flexible budget method. But the revision period of the flexible budget varies in both sectors and in both countries. In public sector companies it is quarterly in Jordan and monthly in India while in private sector companies is half yearly in Jordan and quarterly in India.

- 12 Private sector paper industry in both the countries use past performance as a basis for setting standards related to raw material and labour efficiency. Overhead standards are set on the basis of past records in public sector companies in both countries.**
- 13. For the purpose of setting standards for material, public sector companies in Jordan consider past records as a basis and the test run basis in India. Public sector paper industry in Jordan takes help from past experience as base for setting labour standards while in India union contracts are used for the same.**
- 14. Private sector companies of paper industry in Jordan use normal operating conditions as a basis for setting labour standards and overhead standards. On the other hand, private sector companies of paper industry in India use union contracts as a basis for setting labour standards and past records as a basis for setting overhead standards. Public sector companies in Jordan use time and motion study for setting labour efficiency standards while those in India use past performance records.**
- 15. A number of variances such as material price, material quantity, material yield, labour rate, capacity variance, efficiency variance, sales volume, sales price are considered in private sector enterprises in both countries. Public sector enterprises in both countries also consider many other variances such as material**

yield, sales volume, labour mix, and efficiency variance.

C. Findings Related to Cement Industry of India and Jordan

1. The public sector cement companies in both countries apply cost sheet statement. They classify the elements of cost sheet as prime cost, factory cost, work cost, and cost of production.
2. The public sector companies in both countries use fixed and variable cost as a basis for cost classification. The public sector cement companies in Jordan use non-integrated cost accounting system while in India integrated cost system for keeping cost books are used.
3. The public sector cement companies in both countries use absorption costing and activity based costing as a technique of costing.
4. The companies of cement industry under study in both countries treat the overtime wages and idle time in the same way by charging it to profit and loss account.
5. The public sector companies of cement industry in Jordan apply machine hours and direct labour as a basis for absorption of factory overhead but in India is estimated unit cost is used for the same purpose. The public sector cement industry in both countries apply direct allocation method as a basis of allocation of indirect costs to various departments and percentages on selling price per unit as a basis for absorption of selling and distribution overheads.
6. For the purpose of inventory control, public sector cement industry in Jordan use two bin card system while in India ABC analysis is used. All the sampled enterprises of cement industry in both countries maintained material issue analysis sheet. Public sector cement industry in both countries apply average

price method for pricing input material.

- 7. All the sampled companies of cement industry in both the countries apply budgetary control technique as a method of control and planning. They also prepare various types of budgets related to raw material, labour, and overheads. Flexible budget method is used in both countries as a basis for designing various budgets. Moreover, the revision period of flexible budget is monthly in both companies in both countries.**
- 8. Public sector companies of cement industry in both countries use past records as a basis for setting overhead standards. Public sector companies in India apply scientific computation as a basis for setting raw material standards, normal operating conditions as a basis for setting labour standard and time and motion study as a basis for setting labour efficiency standards, but in Jordan, the company uses past records as a basis for setting raw material standards, past experience as a basis for setting labour standards and past performance records as a basis for setting labour efficiency standards.**
- 9. A number of variances related to raw material such as material price, material quantity, material yield; variances related to labour such as labour mix, variances related to overhead like efficiency variance and capacity variance, calender variance are set. As far as sales variances as concerned the companies under study in both countries apply the same variances , sales prices, sales mix variance is considered only by public sector cement company of Jordan and not in India. The periodicity of calculation of different variances are monthly in both the countries.**

D. Findings Related to All Sampled Industrial Companies of India and Jordan

1. All the sampled companies under study in both countries maintain cost sheet to ascertain the cost of products for a particular period of time. They classify the elements of cost sheet as prime cost, factory cost, work cost and cost of production.
2. Integrated cost accounting system for keeping cost books, most of the companies in both countries is used in except public sector cement industry in Jordan which uses non-integrated cost-system. The sampled enterprises in both countries apply absorption costing technique as a technique of costing. In addition to the above, activity-based-costing technique is applied in public sector cement industry of both countries.
3. Most of the companies under study in both countries apply fixed and variable cost as a basis for cost classification, except those in private sector fertiliser industry in India which use direct and indirect cost as this basis.
4. For absorption of selling and distribution overheads, estimated rate per unit is applied by most of the enterprises in both countries, whereas public sector fertiliser industries in Jordan and India apply percentage on selling price per unit as a basis for the same purpose.
5. Most of the companies under study in both countries use prime cost and estimated unit cost as a basis for absorption of factory overhead. But those in private and public sector paper industry in Jordan apply direct material cost as a basis for this purpose. Public sector cement industry in Jordan uses machine hours as the basis for absorption of factory overhead.
6. Most of the companies in Jordan treat overtime wages and idle time by charging to cost of production account, whereas in India

most of the companies treat them by charging to profit and loss account. In addition to the above, all the private sector companies in both countries treat abnormal loss of material by charging it to cost of production account whereas, those in public sector in both countries treat it by charging it to profit and loss account.

7. ABC analysis as a technique for inventory control is applied by most of the enterprises of both countries, whereas public sector cement industry and public sector paper industry in Jordan use two bin card system as a technique for inventory control. Public sector fertiliser companies in Jordan apply perpetual inventory system for the same purpose.
8. Most of the companies in both countries use material issue analysis sheet to show the value of material consumed during the production period. Most of the companies in both countries use average price method and price of each lot method for pricing input material.
9. Budgetary control technique is widely used in both the countries with various types of budgets, such as raw material budget, labour budget and overhead budget.
10. All the companies use flexible budget method as a basis for preparing different budgets, except private sector fertiliser industry in India which use fixed budget method. In most of the companies under study in both countries, the flexible budget is revised within a short time, either one month or quarter of a year.
11. Most of the enterprises under study use different bases like; past record, union contracts, normal operational conditions, past experience as a basis for setting different standards related to raw material, labour, overheads, labour efficiency.

12. A number of variances related to raw material such as material price, material quantity, and material yield variances; variances related to labour such as labour mix and labour rate; variances related to overhead such as efficiency variance and capacity variance are used by most of the companies in both countries. As far as sales variances are concerned, the companies under study in both countries apply the same variances like sales mix, sales volume, and sales price. The period of revising and calculating different variances is short generally one month in both the countries.

RECOMMENDATIONS AND SUGGESTIONS

Some recommendations are given for improvement in the applications of cost accounting practices.

- A. Suggestions for improving the applications of cost accounting practices (CAP) in both Indian companies and Jordanian companies.**
- (1) The marginal costing technique should be used where only absorption costing is applied. Because it is a better tool for decision making in short run period.
 - (2) The non-integrated accounting system or ledger costing system should be adopted as this system is more suitable in large enterprises like public sector cement industry, paper and fertiliser and chemical industry in India and public sector fertiliser and chemical and paper industry in Jordan.
 - (3) A scientific computation for setting different standards like test-run-basis for raw material standards and time and motion study for labour and labour efficiency standards should be applied in addition to past records and normal operating conditions.
 - (4) Activity-based-based costing as system of costing should be adopted in Indian and Jordanian companies particularly in

fertiliser and chemical industry and paper industry.

B. Suggestions and Recommendations for CAP in Indian enterprises

- (1) Flexible budget should be adopted in private sector chemical and fertiliser industry in India. This method helps in modifying the budget according to the changes in output or level of activity for the purpose of evaluation and control.
- (2) Either fixed and variable or direct and indirect or capital and revenue should be the basis for cost classification. It is better to adopt only one basis rather than many for cost classification in both the sectors of Indian fertiliser and chemical industry. This will be more suitable as the sector applies multiple basis for the purpose. Similar recommendation is for selling and distribution overhead in private sector paper industry of India.
- (3) Fixed and variable cost as a basis for cost classification should be adopted in private sector paper industry in India.
- (4) Abnormal loss of raw material should be charged to profit and loss account in private sector paper industry and private sector chemical and fertiliser industry.
- (5) Average price method for pricing input material should be applied in private and public sector fertiliser and chemical industry and private and public sector paper industry in India.

C. Suggestions and Recommendations for CAP in Jordanian enterprises

- (1) Overtime wages, idle time and abnormal loss of material should be charged to profit and loss account specially in paper industry and chemical and fertiliser industry in Jordanian enterprises.
- (2) Multiple basis of classification of cost and overheads have been identified in Jordanian companies. This makes sometimes inter-

firm comparison more difficult. It is suggested that the basis of classification and allocation of cost should be one in case of public sector fertiliser and chemical industries. The case of public sector cement industry is also similar as far as factory overhead is concerned and the recommendation in this respect also for one method.

- (3) ABC analysis as a technique for inventory control should be adopted in private and public sector paper industry and public sector cement industry in Jordan.
- (4) Fixed and variable cost as a basis for cost classification should be adopted in private sector fertiliser and chemical industries in Jordan.

D. Other suggestions

- (1) A separate cost accounting department or section should be created. The professionally qualified cost accountant should be appointed to lead this section. This is being suggested because in most of the companies cost accounting work is undertaken by the accounts and finance sections. Due to this the accounts department is overloaded and costing work also suffers.
- (2) Special programmes should be introduced to educate higher level executives in the organisation so that they should support the cost accounting system. Mainly, the importance of cost accounting in decision making should be emphasised in these programmes. These programmes may take the form of seminar, conference and should be organised on periodic basis.
- (3) The application of computer for solving the cost accounting problem is also suggested. Whenever, there is change in the condition of working of the organisation, its resultant change can easily and promptly be seen with the help of computer. This will facilitate prompt decision making.



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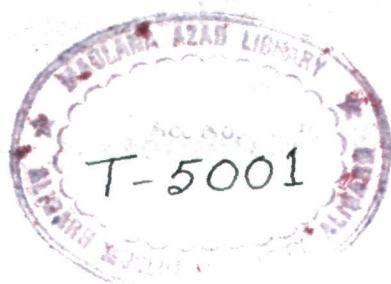
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1998



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TO
MY AFFECTIONATE
PARENTS
AND
BROTHERS, MOHANNA,
DR. HANI, ER. MOHANNAD
AND AYMAN WHO ALWAYS SO
GENEROUSLY MET ALL MY
DEMANDS GENUINE OR EVEN
OTHERWISE

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Dated.....

Certificate

Certified that **Mr. Riad Musleh Deifalleh Al-Shaqahin**,
a candidate for the degree of **Doctor of Philosophy** in the
Department of Business Administration has completed his thesis
entitled "**Cost Accounting Practices - A Comparative Study
of Some Selected Companies in India and Jordan**", under
my supervision.

To the best of my knowledge and belief the research work
is based on the investigations made, data collected and analysed
by him and it has not been submitted in any other University or
Institution for award of any degree or diploma.

Dated: 14.3.1998

A handwritten signature in black ink, appearing to read 'M. Khalid Azam', is written over the printed name.
[Dr. M. Khalid Azam]

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PREFACE

Cost accounting is one of the important sources of generating data for managerial decision making. It helps management in maximizing output at a minimum cost by pinpointing where economies may be affected. In the changed economic seems (In the liberalised economy, its importance has increased manifold as at this stage, only those organisations will survive and flourish which are able to utilise their resources efficiently and effectively. There is an immediate need of study of cost accounting being practiced in the organisations of different sectors, so that necessary changes may be brought about. The countries like India and Jordan which are not that much rich in resources, can not afford to stay with the prevailing system of costing for managing the affairs of the industrial enterprises. Thus, this study entitled "Cost Accounting Practices - A Comparative Study of Some Selected Companies in India and Jordan" is designed to highlight practices of cost accounting in both countries. The relative strengths and weaknesses of the cost accounting practices would provide insight for improving the system in the industrial enterprises of the respective country. This study has been undertaken from higher executive point of view in finance department who are involved in execution of CAPs in

enterprise. It provide insight as how cost system may be applied effectively to ensure better performance for the organisation.

The study is done to cover the features of CAPs in the selected industrial enterprises of both the countries and to provide suggestions to improve the systems where it is weak and inadequate. With this end in view, some aspects of CAPs have been selected for detail analysis. These are related with costing techniques and systems, budgetary control, standard costing, inventory control, variance analysis etc.

Both primary and secondary data have been used in the study. The secondary data were collected from various published materials and the primary data were collected from ten selected industrial enterprises of both India and Jordan through field study. The relevant information and data thus collected have been systematically presented and analysed in accordance with the pre-selected objectives. The presentation, analysis and interpretation of data have been incorporated in nine different chapters alongwith related appendices.

The first chapter describes development of cost accounting over the ages as well need and importance of cost accounting. The inter-related relationship among cost accounting and other accounting branches like management accounting and financial accounting included in this chapter. It aims at providing an overall

idea about cost accounting.

The second chapter emphasises the theoretical focus on different approaches of cost accounting systems and aspects. The aspects like standard costing, absorption costing, marginal costing, variance analysis, budgets and budgetary control, have been discussed in this chapter.

The third chapter presents extensive literature review which has been presented in separate sub-sections in order to find out research gap in both the countries. The justification, objectives, scope of the study, sample selection, collection of data, presentation and analysis, operational definition and limitation of the study have been included in this chapter under separate sections.

The industry profile of the cement, fertiliser and paper industries of Jordan and India has been made in chapter four. It represents the overall position of these industries, in both the countries in a summarised manner. It covers production, sales, import-export, demand, consumption and raw material position of these industries. The prospects of these industries in respective countries have also been highlighted here.

The fifth chapter deals with five selected case studies of Indian industrial enterprises. The case study are presented

separately. Each case study is divided into two sections. In first section the profile of the company has been given where production, marketing, finance and personnel affairs are given due consideration. In the second section the cost accounting applied in these companies have been discussed. This discussion is mainly concentrates on preselected objectives of the study. The same pattern has been followed in case studies relating to five selected industrial enterprises of Jordan in chapter six.

The chapter seven represents the consolidated analysis and interpretation of cost accounting practices in the industrial enterprises of both Jordan and India. Emphasis has been placed on to analysis of CAPs in respect of industry in both countries where both public and private sector enterprises are taken into account. The analysis and interpretation of CAPs practiced in fertiliser and paper industries of both the countries have been presented in this chapter in separate sections and sub-sections.

The chapter eight deals with the comparison of CAPs among the selected industrial enterprises of India and Jordan. The comparison has been made in respect of industry separately. The strengths and weaknesses of CAPs have also been identified separately for each enterprises of India and Jordan in this chapter.

The ninth and final chapter is devoted to enlist the major

findings of the study. The suggestions and recommendations for improvement of the cost accounting practices on the basis of lesson learnt from the analysis of case studies have also been given. The direction for future research is also given at the end of this chapter.

This study of CAPs in the industrial enterprises of Jordan and India covering both public and private sectors would help the professional, managers, policy makers, and the researchers of both the countries. Identification of strengths and weaknesses of the system in respective enterprises and industries will possibly lead to improvement in the cost system by taking corrective measures. It is of help in framing the strategies, policies and systems relating to CAPs. Moreover, the measures which have been suggested would benefit the government planners, top level executives, academicians, researchers etc. who are involved in some some way or the other with the industrial enterprises of both India and Jordan.

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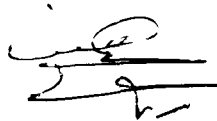
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LIST OF ABBREVIATIONS USED

A-B-C	Activity-based-costing
APCT	Arab paper converting and trading company
BOD	Board of directors
CAPs	Cost accounting practices
CCI	Cement corporation of India
CPL	Continental paper Ltd.
CPM	Cachar paper mills
C-V-P	Cost-volume-profit relationship
EOQ	Economic order quantity
FAO	Food and Agriculture organisation of the United Nations
GM	General Manager
HFC	Hindustan fertiliser corporation
HNL	Hindustan newsprints limited
HPC	Hindustan paper corporation
IFI	Indian fertiliser industry
IPI	Indian paper industry
IPI	Intermediate petro-chemical industries
JCF	Jordan cement factories
J.D.	Jordanian dinar
JPCF	Jordan paper and cardboard factories
JPMC	Jordan phosphate mines company
MNPM	Mandya national paper mills
NPM	Nagaon paper mill
NPPC	Nagaland pulps paper company
PIJ	Paper industry of Jordan
Rs	India Rupees
VAM	Vinyl Acetate monomer
ZBB	Zero-base-budgeting

CHAPTER ONE

INTRODUCTION

- 1.1 General Information**
- 1.2 Historical Perspective**
- 1.3 Need and Importance of Cost Accounting**
- 1.4 Costing and Cost Accounting**
- 1.5 Inter-relationship with other accounting systems**
- 1.6 Costing as an Aid to Management**

INTRODUCTION

1.1 General Information:

This is an information age. Today, information is the root of development process and good management. It has been recognised an important resource of an enterprise so much so that management is viewed as the assimilation of information and taking decisions. In an organization, manufacturing or mercantile, provision of information is basic to its success. Accounting is the key of management information system (MIS) and provides the financial data base in an organisation. It is the only system which furnishes financial information to the various user groups and helps achieve effectiveness and efficiency. Accounting as a decision support system has enormously grown over the centuries and has given rise to three broad branches of financial, cost and management accounting. The basic principles applicable to all three streams are the same and the difference mainly is one of emphasis.

Accounting, essentially, is financial information. It is the process of identifying, measurement and communicating economic information to permit informed judgements and decisions by the users of the information.¹ Cost accounting is the sub-field of accounting that records, measure reports information about costs. It is a unique sub-field of accounting that interfaces with both managerial and financial accounting. Kohler, says "Cost Accounting is the branch of accounting dealing with the classification recording, allocation, summarisation and reporting of current and prospective costs.²

Shillanglaw opines "Cost accounting is the body of concepts methods and procedures used to measure, analyse or estimate the costs, profitability and performance of individual products, departments and other segments of a company's operations for either internal or external use or both and to report on these questions to the interested parties.³ However, the simple, little definition which emphasizes both the traditional and modern view on the subject is one given by Nicholas. He says, "Cost accounting is a system of cost accumulation and classifications for product costing and managerial planning, control and decision-making purposes.⁴ However, the another definition has been given by Nigam and Sharma who opined it as "the process with sequential set of activities of cost finding, cost allocation and cost control.⁵

Glautier and Underdown have highlighted the main purpose of cost accounting as planning decisions, control decisions, the measurement of reported profits and reporting to employee.⁶

1.2 Historical Perspective

Cost accounting is a product of the industrial revolution. This traditional view contends that the increased use of fixed capital prompted accountants to graft cost account into the double-entry system.⁷ It was born out of the need for industrial cost control which was essentially labour intensive in the 19th century and continued to be so almost till the commencement of the First World War in 1914.⁸

The growth of mechanization in industrial as well as agricultural sector, more particularly since the close of the second world war has led to

advancements in almost all fields of activities including the transport, communication and the service sectors, which almost revolutionised the cost control systems.⁹ The concepts, techniques and tools of management accounting were evolved during the middle of the current century.¹⁰ Nineteenth century industrial firms were among the first in history to use internal administrative practices to coordinate multiple processes involving the conversion of raw material into finished goods.¹¹

Another development has been the so-called "domestic system" which consist of merchants and artisans who coordinated the transformation of raw materials into finished goods, through autonomous market exchange.¹²

The definition of cost accounting is normally reserved for integrated cost and financial accounting systems which involve the allocation of indirect and fixed expenses.¹³

Although there exists a distinction between managerial and financial uses of accounting information, their commentaries on nineteenth century cost accounting practices show a distinct bias towards those developments which foreshadowed the twentieth century concerned for matching costs with realised revenue and for attending manufacturing costs to products.¹⁴

The non market coordination of economic activity necessitates the development of managerial cost accounting to explain more than just the development of internal cost accounting practices in nineteenth century manufacturing firms.¹⁵ By comparing how variance societies organise economic activity, valuable insight into nineteenth and twentieth century differences in cost accounting practices among nations may also be attained.¹⁶

Virtually all of the practices employed by firms today and explicated in leading cost accounting text books had been developed by 1925.¹⁷ Despite considerable change in the nature of organisations and the dimensions of competition during the past decades there has been little innovation in the design and implementation of cost accounting and management control systems. Therefore, it is not only appropriate but necessary that we understand the sources of today's practices, reflect on the new demands for planning and control information and develop a research strategy to meet these new demands.¹⁸

The major figures in scientific management movement were engineers whose by detailed job analysis and time and motion studies, determined "scientific" standards for the amount of labour and material required to produce a given unit of output. The scientific management advocates also started the practice of measuring and allocating overhead costs to products.

The preceding development emphasise that the growth of the modern corporation, between 1880 and 1925 provided the stimulus for the development of innovative management accounting practices. These practices were devised by engineers and industrial work in actual organisations rather than by academic researchers. The period since 1925 has not been devoid of interesting developments in the cost accounting and management but these developments have been primarily by academics and with few exceptions, have had relatively little impact on practice.¹⁹ About 1960, a major stream management accounting literature standard on the application of quantitative models to a variety of planning and control

problems.²⁰ This literature stimulated by the development of operations research as an academic discipline in the post world war II era, described how analytical technique, including regression analysis linear and non-linear programming, probability theory, hypothesis testing and decision theory could be applied to cost accounting problems.²¹

Much of what has been written on the historical development of cost accounting has focused on what might be described as single variable solution.²² The level of industrialisation, the relative impact of fixed and variable costs and the organisational structure of business activity have been identified as principal causal factors, cost accounting has developed to serve management in an increasing complex and constantly changing social and economic environment.

1.3 Need and Importance of Cost Accounting:

Cost accounting, as a branch of accounting came to prominence because of the limitations of financial accounting. Financial accounting a firm to ascertain the financial results of operations during a period and to portray the financial position of the undertaking as at the end of the period. Cost accounting aims at a systematic recording of expenses and analysis of the same so as to ascertain the cost of product manufactured or service rendered by a business organization. Different costs are used for different purposes and that different cost terms are used for example opportunity costs, sunk costs, fixed costs, variable costs, differential costs, etc. Kaplan says, in cost accounting a central aim is to determine how costs are affected by variation in activity level.²³ The knowledge of how costs vary with either

outputs or inputs is necessary for all planning and control decisions.²⁴

1.4 Costing and Cost Accounting:

In practice, the term 'Costing and Cost Accounting' are used interchangeably, but whenever academic distinction is made, costing refers to ascertainment of costs, measurement and accumulation of costs of activities, processes, products or services. It is measuring the economic consequences of carrying out or having carried out any specified activity. Cost accounting on the other hand, denotes that specialised branch of accounting which assist management to control cost and to create or intensify an awareness of the importance of cost to the well being of the company. In other words, it stimulates cost consciousness.

The Institute of Cost and Works Accountant in England and Wales defined cost as "The technique and process of ascertaining costs" and the cost accounting as the process of accounting for cost from the point at which expenditure incurred or committed to the establishment of its ultimate relationship with cost centres and cost units.

Three important ideas are included in the definition. First cost control, second, ascertaining profitability and profits earned, third, collection and presentation of such information as is required by the management in making decisions.

1.5 Inter-relationship with other accounting system :

Accounting as it maintained in the organisations are of mainly three types:

- * **Financial accounting**
- * **Cost accounting, and**
- * **Managerial accounting**

In modern business and industry the three functions of financial, cost and managerial accounting are carried out together and in many ways merge into each other. Hard and fast distinction among these functions cannot be made but their basic approach can be outlined as follows:

Financial Accounting function treats money as an economic factor of production, the main object of financial accounting is to make periodical reports to owners, creditors and the government as regard to the profit of the business and financial position of the business at the end of the period financial accounting deals with the whole business emphasises on the past, more confined to the preparation of accounts from the point of view of outside parties. Day to day business transactions are analysed and recorded in books or records of original entry.

Cost Accounting function treats money as a measure of economic performance, the values of resources used are found and techniques employed are attained at arranging money information in such a manner that management is given a clear an indication as possible of their performance and the direction in which they must move in order to improve their economic efficiency. Cost accounting is basically concerned with the determination of the aggregate cost of the goods manufactured and services rendered or offered by the business. Cost accounting is the process of analysing,

recording, standardising, forecasting, comparing and reporting the costs, cost accounting measure the operating efficiency and it is an internal aspect of the organisation.

Management Accounting is the third phase in the evolution and growth of the science of accounting. It relates to the use of financial and cost data for purposes of evaluation of the performance at the business as a whole and the various departments comprising it in relation to predetermined targets. It also aids in reviewing existing policies or making decisions about new policies and in forward planning. This function has evolved of cost accounting and the two are still closely interlinked. Management accounting and cost accounting functions are complementary in nature.

1.6 Costing as an Aid to Management:

Costing enables a business not only to find out what various jobs or processes have cost but also what they should have cost. It indicates where losses and wastes are occurring before the production is finished. Cost accounting is a tool of management that be used in day to day control and supervision of manufacturing distribution and administrative activities. As a function of management cost accounting provides for the proper classification and subivision of costs, control of materials and supplies, wages and overheads costs, establishment of standards for measuring efficiency, budgeting, accumulation of data as an aid to price determination; curtailment of losses due to seasonal conditions and determination of expansion and contraction policies.

A careful consideration of this concept of cost images an aid to

management would reveal that costs are determined for management in order to assist them to manage and cost is not the only factor that management must consider. They would not run their business purely on the basis of cost accounting figures. However, no management group will attempt to manage without having the best information to arrive a decision. The information regarding cost of each unit produced or service rendered by systematic accounting would enable the businessmen to know where to economise on costs, how to fix prices, how to maximize profits and so on. Thus, cost accounting is considered to be a tool of the management as it helps to know more about costs. The objective of cost accounting is to ascertain the cost of products / services by a methodical system of accounting.

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CHAPTER TWO

COST ACCOUNTING - A THEORETICAL FRAMEWORK

- 2.1 Concepts and goals of cost accounting**
- 2.2 Cost accounting methods and techniques**
- 2.3 Standard costing**
- 2.4 Variance analysis**
- 2.5 Cost accounting and managerial decision making**
 - 2.5.1 Absorption costing**
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- 2.6 Cost control technique - Budgeting and budgetary control**

COST ACCOUNTING - A THEORETICAL FRAMEWORK

2.1 Concept and Goals of Cost Accounting:

The Institute of Cost and Work Accounts of the UK has defined cost accounting as the application of costing and cost accounting principles, methods and techniques, to the science, art and practice of cost control and the ascertainment of profitability.¹ It includes the presentation of information derived there from for the purpose of managerial decision making. Costing is the process and technique of ascertaining costs.

For efficient use, the costs have to be determined promptly. The rapid changes in business conditions require the use of current information for taking various decisions. This expresses the preparation of statistical data, the application of cost control methods and the prescription of routines and procedures which will provide information of present procedures which will provide information of present significance for proper planning, operation, control and decision making.

Costing enables the management to determine the actual cost of various jobs and processes. The cost which should have been incurred by it and the wastages and losses being incurred before the work is finished. Correct and reliable cost information helps

decision making on the choice of alternative methods and processes. The questions as to whether the diversification plan will be worthwhile or the production should be concentrated on one particular product to the exclusion of less profitable ones, can be solved with the help of costing techniques, it facilitates the management to eliminate, substitute or to measure the contribution made by a component or productive activity.

The management of a business has to be so organized as to achieve the goal of desired volume of production at the least possible cost. Cost accounting provides the measurement of the extent to which this objective of management is achieved. For this purpose all the expenses are controlled on the information furnished by cost records. Essential data relating to the cost of production facilitate decision making on price policy, tendering and evaluation of the possible effects of price reduction for ensuring and sustaining a particular share of the market.⁵ The costs determined under a properly laid out costing system provides the measure for estimates, affords guidance over policy matters and a control over the production function.

One of the important goals of cost accounting is to indicate inefficiencies and any form of wastage whether of materials, time, expenses or in the use of machinery, equipment and tools.⁷ The analysis of causes leading to those wastages and inefficiency may indicate to the management the remedial action required for

controlling, reducing or avoiding the wastages or inefficiencies.

In brief, the concept of costing is the determination of actual costs for the purpose of control and forecasting of the future. The goals of cost accounting are the goals of the management in as much as it aids as a tool for achieving the objectives and goals of the enterprise by furnishing reliable facts on cost for decision making by the management. The different concepts, tools and techniques applied for costing and cost control are discussed below

Elements of Cost:

The costs of transforming raw materials into finished products are classified into two major categories manufacturing and non-manufacturing costs.

Manufacturing Costs: These costs comprises three elements:

1. Direct material costs;
2. Direct labour costs;
3. Factory overhead costs.

The term 'direct' cost is applied only to those costs which can be readily identified with the product. Therefore, direct material costs include only those costs which can be directly associated with the finished product. Similarly, if an employee performs a task connected with the making of the product, his wage is considered as a direct labour. Direct labour and direct material

costs are referred to as prime costs.²

Factory overhead costs include all the remaining production cost after direct costs have been determined. In manufacturing accounting, all products costs direct material, direct labour and factory overhead are capitalized.³ That is they become the cost of goods manufactured. Cost of goods manufactured equals the total of all manufacturing costs incurred adjusted for the changes in process inventory. Cost of goods sold equals cost of goods manufactured, adjusted for the change in finished goods inventory. Neither cost of goods manufactured nor cost of goods sold includes selling expenses for non-factory administrative expenses. Worksheet for manufacturing firms have an additional set of columns for cost of goods manufactured.

Factory overhead sometimes called manufacturing overhead or factory burden, including all of other manufacturing costs not included in direct material or direct labour.⁴ Such as indirect material, factory supplies used, indirect labour, factory payroll taxes, fring benefits, factory utilities (natural gas and electricity), factory building, equipment costs (Insurance, Property Taxes, repairs and manufacture and depreciation). Cost of goods manufactured is the cost of goods whose manufacture is completed during the accounting period. The manufacturing cost is the total of all direct and indirect costs. It is the cost of manufacture which is recorded as the stock value of the finished products while it is

awaiting sale, upon sale, the manufacturing cost forms part of the cost of sale for the purpose of calculating the trading profit.

We determine cost basically by accumulating the total costs incurred in doing something and then allocating these costs among the various units of accomplishment. Virtually all cost data are based on assumptions about and relatively arbitrary choice among equally defensible accounting procedures.

Non-manufacturing Costs:

These costs are not included in the cost of manufacturing the products, and they are not included in the cost of sales. Non-manufacturing costs are, period, rather than 'product' costs. They are associated with accounting periods rather than with output. Non-manufacturing costs include administrative and marketing costs. Administrative costs are defined as the costs incurred on executive salaries, head office staff expenses including all clerical and secretarial staff, legal expenses and depreciation on office equipment, furniture etc.⁵ marketing costs include the activities associated with obtaining orders such as advertising and selling costs, and activities concerned with fulfilling orders such as warehousing packing and delivery.⁶

Cost Sheet or Statement of Cost:

Cost sheet is a statement where in detailed information about cost is depicted and a total cost of product manufactured during

a particular period of time is ascertained. The cost sheet is prepared for a particular period e.g. monthly, quarterly, etc. The cost sheet is prepared with the objectives of ascertain the total cost and cost per unit for a particular period, enables the management to fix up sale price of products, it helps to present a comparative study of current costs with the cost of the corresponding period, the management can identify the causes of inefficiencies and wastages and the management can take corrective measures, provide management considerably in formulating suitable and definite production policy, cost sheet enables the businessman to submit quotations against tenders.

There is no fixed form for preparation of cost sheet but in order to make the cost sheet more useful it is generally presented in column or form. The columns are for the total cost and per unit costs for current period, total cost and per unit costs for a preceding period and total and per unit cost for budget period and so on. Cost sheet is a memorandum statement. Therefore, it does not form part of double entry cost accounting records.

2.2 Cost Accounting Methods and Techniques:

To ascertain costs, different methods are applied depending upon the nature of the product, production method and specific business conditions.

The following are the principal methods of costing.

- i) Costing on the basis of manufacturing process:
 - a) Job costing b) Process costing

- ii) Classification on the basis of time:
 - a) Historical costs b) Pre-determined cost like
 - i) Estimated costing, ii) Standard costing
 - iii) Classification for making managerial decisions:
 - a) Marginal costing b) Uniform costing
 - c) Opportunity d) Replacement costs
 - e) Imputed cost

They are now discussed in brief.

Job Costing: Sometimes called specific order costing. This system is appropriate when production is characterised by a series of different products or jobs undertaken either to fill specific orders from customers or to produce a general stock of products from which future orders are filled. This type of costing is widely used in construction, printing and machine shop operations. Under this method, costs are collected and recorded under a specific production order. When an order is received, production control or allots a number to it. In job costing all costs of direct materials, direct labour and other direct expenses are directly charged to the specific job or product. Job cost sheets are used for the accumulation of job costs. Batch costing, contract costing and composite costing are the other variations of job costing.

Batch costing: Batch costing refers to that method of costing which determines the cost of a group of identical products. The batch cost divided by the units produced in the batch gives a cost per unit of production. This method is applied to general engineering factories which produce components in economical batches for subsequent assembly. Both costing can conveniently be applied to companies engaged in manufacturing radio, televisions, watches, cars, electronic goods, medicines, biscuits, bakeries, confectionary etc.

Contract costing: This method of costing is based on the principle of job costing. A specific contract becomes the cost unit. A particular contract is treated as a whole job and the cost of the contract is ascertained. It is also known as terminal costing since the job cost is completed with the completion of the work. Contract costing is used in building and civil engineering workshop building and aircraft manufacture.

Composite costing or multiple costing: Some products are so complex, e.g. bicycles, motor cars, wireless sets, machine tools, aeroplanes, televisions, radios, etc. that no single system of costing is suitable. In such industries a method of costing is used which could be best described as a combination of job and process costing.

Process costing: Process costing is a system which applies costs to like products that are mass produced in continuous fashion

through a series of production steps known as processes. The finished goods of earlier processes becomes the raw materials of the latter processes. Costs are identified and ascertained for each process and charged to that process. The costs are identified with a cost centre, or production department during a period of time - usually a month. At month-end cost are summarised for each cost center in a separate production cost report. This report provides the unit cost information that can be used to determine costs of goods transferred from process to process and finally into the finished goods inventory. The process system has several work-in-process accounts, each supported by monthly production cost report (one for each department). This method is particularly necessary where by products appear or where one article out of a batch loses its identity during the process of manufacture. By this method comparison of the costs of different operations is possible and prices of each stage can be fixed. This is the method used: a) where the product of one process becomes the material for the subsequent process, b) where the different products and by-products if any, are produced simultaneously from the same process, c) when the products differing only in shape or form on completion, *are not separately distinguishable from one another* during one more processes of manufacture. Chemical industries, oil refineries, gas and electricity generating concerns, textiles, paints, flour, food processing, paper, mining and cement industries etc. make use of this system of costing. Other variations of process

costing are: operation cost, operating cost, cost and single or output cost.

Operation cost: The cost unit is the 'operation' instead of the process. This system is used by the manufacturing concern where methods of production consist of a number of distinct operations. The per unit cost is arrived at the end of each accounting period by dividing the cost of an operation by the number of units completed in the operation centre. With many engineering plants, this method is used as it will sometimes be found more convenient to cost contain articles or parts according to the operations performed on them particularly in such cases where certain articles or parts must be stocked in a partly finished state for convenience in making special orders. It is used in factories where production is in quantities of standard lines with the object of working at a minimum cost. It is particularly useful when it is impracticable to separate scrap or waste arising from different operations.

Operating costing: Operating system is the essential method where services are rendered rather than goods produced. Operating cost is used for finding out the cost of the appropriate cost unit for a particular service. It is used by those organizations which render services such as transport, powerhouse, schools, catering, hospital, boiler etc.

Single or Output costing: This method is employed where production is uniform and consist of a single product or two or three

types of similar products.³² The unit cost is obtained by dividing the total cost by the total number of units manufactured.

Historical cost: In this technique the determination of cost takes place after they have been incurred and production has been completed.³³ It follows that the information prepared on this basis relates to past events. Historical costs are 'post mortem' cost. Such a costing procedures is ineffective because cost figures are of no particular use either for controlling the cost of later productions or in enabling the selling price to be revised immediately with a variation in cost. To remedy this defect, a system of predetermined cost (standard cost) was evolved which could be computed in advance of the production on the basis of specification of all factors affecting the cost.

Marginal costing: In marginal costing the costs are classified into fixed and variable costs. The fundamental approach of marginal costing is to relate variable costs to cost units, while fixed costs are attributed to the business in general. Variable costs are charged to production; fixed costs will be written off in full in the period to which they are attributable. Marginal costing assumes that the excess of sale price over variable cost contributes to a fund which will cover the fixed costs. In other words, fixed overhead is not allocated to cost units.

Chart showing the method of costing applicable to industry.⁷

Industries	Meethod of Costing
1. Chemical Industries: Cement Soap Steel Oil Refinery Leather Sugar	Process costing
2. Electric light and power undertakings, Railways, Hospitals, Road transport.	Operating costing
3. Furniture manufacturing readymade garments, to making, biscuits manufacturing.	Batch costing
4. Ship building construction of road, building.	Contract costing
5. Bicycle, locomotives, air-conditioners.	Multiple costing
6. Baby food, paints and decorating	Job costing

2.3 Standard Costing:

Standard costing is a system which seeks to control the cost of each unit or batch through determination beforehand of what should be the cost and then its comparison with actual cost.⁸ Thus

standard costs may be defined as predetermined or budgeted costs of a unit of a product or a job. Standard costing is complementary to budgetary control. It is difficult to operate a system of budgetary control unless the cost of production of each unit is kept strictly under control.⁹

The following are the advantages sought with standard costing:

Exact degree of efficiency in various operations can be ascertained through comparison of actual and standard costs, Exact causes of deviation of actual costs from standard costs are discovered, Management by exception is possible since it is possible to separate the efficiency from inefficient operations, The effect of idle capacity or fluctuations in output or sales is highlighted, The whole firm is imputed with a dynamic forward looking mentality, Standard costing is of immense benefit for cost audit since its variances are satisfactorily explained, the accuracy of costing can be safely assumed, The cost of cost accounting itself is reduced since all rates are fixed and do not have to be calculated.

Standards may be fixed on an idealistic basis assuming everyone will perform at utmost efficiency. This is rather unrealistic. Standards may be fixed on the basis of past average performance. This will serve no purpose, unless past performance was excellent. As a general rule, standards should be achieved with some efforts they should not be such as to be unattainable or such as to be

attained without any effort.

Standard costs are fixed for each product. Past experience and experiments is the basis to proceed upon. For instance, in case of labour, time and motion study will determine how much time is to be allowed. In the same way it should be found out by experiments. The number of units of raw materials will suffice to make a unit of finished products. The experiments will also disclose whether any change in operations or in the materials to be ordered are called for. As far as possible standard should also be fixed for indirect expenses in quantitative terms - petrol consumed for instance.

2.4 Variance Analysis:

A variance is the variation between the standard specified and the actual element. Whenever certain aspects of performance deviate from the specific expectations, variance arise. A variance can be for any phenomenon which fails to reach the target performance. In cost accounting, however, variance has a particular meaning. A variance or cost variance is the difference between the standard cost and the comparable actual cost for a particular period.

The variances can be debit or credit, depending on whether the actual exceed or fall short of the standard stipulation. Debit variances which result when the actual costs exceed the standard,

can be viewed additional costs or losses. Credit variances, which result when the actual costs are lower than the standard should be viewed only as savings. A debit or negative variance which is the result of inefficient or substandard performance should be considered as loss and, hence, unfavourable or adverse. Credit or positive variances should be considered as saving and hence, favourable. Unfavourable variances does not necessarily represent inefficient or substandard performance. It might reflect a defective standard. Variances in any year may arise due to poor standard setting. Likewise, a favourable variance is not necessarily beneficial and a reflection of efficiency. A favourable variance may be indicative of slackness or incompetence.

Deviations as these are from plans tend to pinpoint problem which have developed. Variance analysis provides a means of evaluation and control. The main uses of such variance information are :

The variances indicate the overall efficiency of the organisation compared with the standard, plan, target or budget. They also show the trend in progress of the organization and allow payment by results according to functional responsibility. Variances bring to surface the elements of performance which require attention. Data are provided for the measurement of efficiency of machines, operators and material usage. The variance factor can be used for application to standard costs in order to arrive at current actual

costs. Since they represent the relative economic gains and sacrifices, future standards can be adjusted accordingly.

Since profit equals sales minus costs, the following three classes of variance could be considered:¹⁰

Cost variance,

Sales variance, and

Profit (or loss) variance.

A cost variance is the difference between standard cost and the comparable actual cost incurred during a period. It is the resultant of the changes in the cost levels. A sales variance shows either the effect on business due to the changes in quantities of sales (turnover) or prices obtained for sales. The variances based upon profit are generally the most meaningful. It is the difference between the total cost variance and the sales variance. The total of variances represents the difference between actual profit made by a manufacturing organisation and the standard profit that ought to have been made.

Basic Variances:

A key managerial question is as to how many variances should be calculated and investigated. It depends on the impact and controllability of variances. In general the high impact, highly controllable variances should get the most attention, while low

impact, uncontrollable variances should get the least attention.

The basic cost variances computed are:¹¹

1. Materials price variances
2. Materials usage variance
3. Labour rate variance
4. Labour efficiency variance
5. Variable overhead spending variance
6. Variable overhead efficiency variance
7. Fixed overhead spending variance
8. Fixed overhead volume variance

2.5 Cost Accounting and Managerial Decision Making:

2.5.1 Absorption Costing: Absorption costing is a costing technique under which all manufacturing expenses are charged to product costs. It is called "full costing" because the technique seeks to absorb or include both fixed and variable costs of the product.

The basic merit of absorption costing is as follows:¹²

It makes a clear distinction between product and period cost and hence shows which of the costs will depend directly on production and which on time, regardless of production. It highlights the gross and net profit. Operating margin is clearly distinguished from the net profit. Fixed manufacturing overhead is utilized and assigned to product, i.e. inventory to be subsequently released to

expense as a part of cost of goods sold. Whenever prices are regulated e.g. airway, railways, electricity and other public utilities full cost is still the basis.

No doubt, absorption costing has been in practice since the beginning of modern cost accounting, it has led to many wrong decisions. Some of the weaknesses of absorption costing are:¹³

Full costing leads to mistaken conclusions about dropping the product lines because of the operating loss. By this method, it is not possible to determine the anticipated effect on the profitability of either product line or the company as a whole. The data may yield materially different conclusions according to the basis selected for appointment of indirect costs. Absorption costing is not compatible with flexible budgeting procedures. The inclusions of fixed overhead as a component of unit costs results in a fixed overhead volume variance. This variance can be influenced by such factors as sales performance, production efficiency or forecasting errors. Absorption costing method treats fixed costs as if they are unit (variable) costs. But treating fixed cost as a unit cost can be misleading. A unit fixed cost is a function of not only the amount of fixed costs but also the volume of activity. Hence, managers find it necessary to convert the utilized fixed manufacturing cost back to the original total for decision making purposes.

2.5.2 Marginal Costing: Marginal costing centres a round marginal product costs i.e. the cost of producing an additional unit of output.

It is the amount of any given output by which aggregate costs are changed if the volume of output is increased or decreased by one unit. But this is the economists' view point of marginal cost. In accounting, too, marginal costs mean extra costs of a unit. It examines the additional costs incurred in increasing production by given quantity or a block of units.

The procedure involved in accounting under variable or direct costing is described below by the National Association of Accountants in the U.S.A. "Under direct costing (marginal costing) the distinction between direct cost and period cost determines when costs are matched with revenues. Direct costs are assigned to products and matched with revenues when revenues from the related products are recognised. While period costs are matched with revenues, in the period in which the costs are incurred.

The variable costing provide the following merits such as:¹⁴

Cost-volume profit relationship data wanted for profit planning purposes is readily obtained from regular accounting statement. The profit for a period is not affected by changes in absorption of fixed expenses resulting from building or reducing inventory. Manufacturing costs and income statements in the direct cost form follow management's thinking more closely than does the absorption cost form. For this reason, management finds it easier to understand and to use direct cost report. The impact of fixed costs on profits is emphasised because the total amount of such cost for the period

appears in the income statement. Direct costing ties in with such effective plans for cost control as standard costs and flexible budgets. In fact, the flexible budget is an aspect of direct costing and many companies thus use direct costing method for this purpose without recognising them as such. Reported net income tends to follow sales volume. This may be true under absorption costing. Cost-volume profit relationships are more easily discerned from variable costing income statements than from conventional absorption costing statement.

The problems recognised for marginal costing are:¹⁵

Difficulty may be encountered in distinguishing the fixed cost. In particular, certain semi-variable costs may fall in a border line area and more or less arbitrary classification may be considered necessary in order to arrive at practical determination of fixed and variable components. Serious income tax problems may be encountered if a change is made from full cost to variable cost for costing inventory and definite rulings are not available for guidance. Costs are fixed only for short period and this is forgotten by many firms which leads to faulty decisions. Variable costing is a faulty basis for making decisions in normal times and normal circumstances. Accounting measures derived under variable costing are not in accordance with generally accepted accounting principles, nor are they acceptable for reporting purposes under the internal revenue code.

The marginal costing method allows periodic net income to be measured as a function of only one variable. Contribution margin is equal to sales revenue minus total variable cost of products sold.

The only difference between absorption and variable costing is that fixed factory overhead is capitalized under absorption costing and expenses under variable costing.¹⁶

Cost Profit Volume Analysis: Cost volume profit (C-V-P) analysis is a study of the relationships between costs and volume and their impact on profit. These three parameters are related to each other so that the volume is a function of price, and cost is a function of volume. The analysis seeks to determine and express the inter-relationship of the activity, costs, sales prices, and sales mix to earning.

Behaviour of total cost in response to volume changes are divided into three basic categories within a relevant range.¹⁷

- a) Variable, which responds proportionately with zero cost at zero volume.
- b) Fixed, which is constant.
- c) Semi variable, which responds, but less than proportional owing to fixed component.

Total cost for most firms is best represented by the semi

variable cost pattern.

Semi variable cost sometimes called mixed costs for the purpose of cost analysis and is divided into its fixed and variable elements.

We assume linear relationship over a wide range of activity in this analysis and also consider that the total fixed cost and variable cost per unit are constant over the entire range of analysis. Selling price per unit remains the same regardless of the volume of sales. When more than one product is involved and sales volume varies, each product percent of total sales (sales mix) does not change.

Margin of safety is the amount by which the actual sales level of accompany exceeds the break-even sales level. If sales decrease by more than margin of safety, then the company will incur as operating loss. At break-even point contribution margin equal fixed costs.

2.8 Cost Control Technique - Budgeting and Budgetary Control:

Management has a basic responsibility to plan, control, measure performance and take decisions. In order to carry out this responsibility, management must plan revenues and expenses, compare actual results to planned results, evaluate differences between actual and planned results and make decisions and take corrective action based on the evaluations. Budgeting is one of the

concepts which facilitates this process.

Budgets and Budgeting: Budgets were first used extensively in government but now they have become an extremely valuable tool of management. In most government agencies today, budgets are employed primarily to restrict expenditures. In business, a budget could be seen as a statement of intentions or a statement of expected income and expenses under certain anticipated operating conditions. A budget is an accounting plan, a forecast of activities of an enterprise for a forthcoming period. It is a formal plan of action in mostly in monetary terms. It is viewed as a systematic plan for the utilization and coordination of material, labour and other resources. Welsch who uses budgeting and profit planning and control in the same context says "the budget or profit plan is a formal, quantitative statement of management plans and policies for a given period and is used as a guide or blue print in the period."¹⁸ Nigam and Sharma consider budget as a standard with which to measure the actual achievement of departments, departmental heads and the business as a whole.¹⁹

The budgeting satisfies the objectives -

Forecasting the future and plan to avoid losses but more positively to maximise profit; bringing about coordination between different functions of an enterprise which is essential for the success of any enterprise; ensuring that actions are in tune with

targets; maximum utilization of resources with a view to ensuring maximum return; better coordination and understanding between different functions; a basis of performance measurement and control.²⁰

But budgeting is not without limitation few of them are listed below.²¹

Forecasting or budgeting is not an exact science and certain amount of judgement is present in budgeting; absolute support and enthusiasm by the top management is the basic requirement for the success of budget, which generally lacks; installation of budgeting system is an elaborate process and takes time.

In budget preparation we should consider certain elements. The budget committee, the budget period, master budget, budget manual, forecast, key factor.

Budget Committee: Generally consists of representatives from all major areas of a firm - such as sales, production and finance and is frequently headed by the firm's controllers. The committee duties of coordinating preparation of the budget, initiating budgeting process, collecting and integrate data from various organisational units, supervise the review and modification of original estimates, direct the implementation of the budget.

All departments should participate in formulating the budget, so that it should be accepted as a reasonable standard of

performance. In the absence of such participation, the budget may be viewed as an unreasonable goal imposed from above.

The period covered by a budget varies according to the specific activity. Cash budget cover a week or a month, production budgets a month or a calender quarter. But the usual budgeting period is a year. The organisations prepare budget manual which is a document which sets outstanding instructions governing the responsibilities of persons and the procedures, forms and records relating to the preparation and use of budgets.

For budget preparation the key factors are identified which limit the activities of an undertaking. The following is a list of principal budget factors⁵⁹ which influence the targets in the field of sales, it is usually the customer demand, in the field of production, the plant capacity, in the field of construction. The availability of cement and steel. The other factors are (a) Availability of raw material, (b) Skilled labour and capital, (c) Government restrictions.

A comprehensive budget known as master budget is prepared that integrates all other budgets of the firms various activities. The master budget contains the data necessary to formulate projected financial statements for the budget period.

The key components of master budget are outlined below.²²

- | | |
|--------------------------------------|----------------------------|
| 1. Sales Budget | Provide a basis for |
| 2. Production Budget | Projected Income |
| 3. Direct Material Budget | Statement |
| 4. Direct Labour Budget | |
| 5. Factor Overhead Budget | |
| 6. Operating Expenses Budget | |
| 7. Capital Expenditure Budget | Provide a basis for |
| 8. Cash Budget | Projected Balance |
| | Sheet |

Production budget reflects the quantity of each product to be produce during the budget period. Production budget is a logical development from the sales budget.

The material budget specifies the quantities of materials to be purchased to meet scheduled production and desired ending inventories are presented in the materials budget. The quantities to be acquired are multiplied by the anticipated unit cost price to calculate the total amount of materials purchased.

The direct labour budget presents the number of direct labour hours necessary for the planned production volume for the budget period. These hours are multiplied by the applicable hourly labour rates to determine the total amount of budget direct labour costs.

The factory overhead includes both variable and fixed cost elements. The factory overhead budget should be determined by using a flexible budget approach. A flexible budget may take the columnar form or it may be stated as a cost formula.

This flexible factory overhead budget should be prepare for each production department.

Budgeted balance sheet present anticipated balances for the various balance sheet items at the end of the budget period.

Operating expense budget is composed of selling and general administrative expenses and are often budget using the flexible budget approach.

From the information available from the operating expense a budgeted income statement can be prepared. The budget income statement may be supported by schedule or statement of cost goods sold.

After the budgets for direct material, direct labour and overhead are determined, the data are summarised in a cost of goods sold budget.

Capital expenditure budget is a list of types of equipments and the amounts budgeted for their acquisition in future operating period.

Cash budget portrays the projected flows of cash during the

budget period. Cash receipts are shown in terms of their sources and cash disbursement in terms of their uses. The difference between these two flows determines the net periodic change in cash balance.

Budgetary Control: In addition to planning, budgeting is also an instrument of control. Budgeting control is one of the two aspects of the budgeting process, the other is budgetary planning. Budgetary control arises only after budgetary planning.

The Chartered Institute of Management Accountants, England, defines budgetary control as "the establishment of budgets relating to the responsibilities of the executives to the requirements of policy, and the continuous comparison of actuals with budget, either to secure by individual action the objectives of that policy or to provide a basis for its revision".

A diagnostic presentation of the budgeting and budgetary control process, as a financial control technique, would be helpful in understanding significance.

The budgetary control system satisfies the objectives of - to determine expenditure of a business, planning and control the income and expenditure of business, to arrange for the financing of the business so that adequate money is available where required.

New Concepts in Budgeting: Two new concepts which have entered budgeting in the recent past need be specifically

mentioned. Zero-base budgeting and performance budgeting.

Zero-Base Budgeting (ZBB): Traditional budgeting procedures often start with the preceding one's budget or the preceding year's actual expenditures. But zero-base budgeting (ZBB) requires each of the firms budgetary units to justify all of its expenditures as if the units operations were just starting.²³

ZBB may take different forms, but the prevailing procedure is the following:²⁴

The firm is divided into decision units (cost or service centres) to which budget decisions naturally relate, decision units request funds by preparing decision packages which set forth a statement of goals, a programme for achieving them, benefits expected, related alternatives and consequences of not being funded, various levels of management participate in combining and ranking all departments decision packages, decisions packages ranked higher than management cut off point constitute the plans for the firms master budget. A major drawback to ZBB it is time consuming and costly.

Performance Budgeting: Performance budgeting seeks to obtain physical measure of work effort and results by establishing a meaningful relationship between financial outlays and physical content of the programme. Performance budgeting too is of particular importance to government and non-profit organizations.

In this chapter different aspects of costing have been discussed. These aspects are related with cost concept, cost accounting systems and techniques. In addition to that standard costing, variance analysis and cost control techniques have been discussed as they enable management in measuring the efficiency of conserve and provide help in decision making. All of them will these aspects which have been discussed help the management in cost ascertained practices in the industries.

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CHAPTER THREE

LITERATURE SURVEY AND RESEARCH METHODOLOGY

- 3.1 Literature review**
- 3.2 Identification of research gap in the earlier studies**
- 3.3 Justification of the study**
- 3.4 Objectives of the study**
- 3.5 Scope of the study**
- 3.6 Sample selection**
- 3.7 Collection of data**
- 3.8 Presentation of data**
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- 10. Limitations of the study**
- References**

LITERATURE SURVEY AND RESEARCH METHODOLOGY

This chapter deals with the review of available literature for identification of research gap in the earlier studies. On the basis of this gap research justification, objectives and scope of the have been presented. Sample selection, collection of data, presentation and analysis, and limitations of the study have been presented under separate sections and sub-sections.

3.1 LITERATURE REVIEW:

The literature review covers the work done in India and Jordan relating to different aspects of cost accounting and are relevant for this study. Due attention has been given to ensure that latest informations are incorporated. For the purpose of systematic presentation, literature review has been divided into different sections like cost and costing techniques. Cost estimation and ascertainment, cost accounting practices in different countries and cost control techniques. Proper care has been taken in accepting the study, that it should be thoroughly researched one.

A. COST AND COSTING TECHNIQUES:

Most of the articles examined are directly or indirectly related with the features of costs. The findings of the study are outlined below:
Edis¹ has conducted a survey and showed that only a minority of

companies operate systems of standard costing and very few would consider using standard marginal costing or direct standard costing. Kates² in his study emphasised that the direct costing has equally progressed from a score-keeping technique to a prime decision tool, particularly in a volume oriented-organization, He also added that the practical benefits of direct costing range from control of daily performance, to future planning. Schulte³ in his study has highlighted the application of direct costing technique.

Skinner⁴ has discussed the problems which business faces in using absorption costing for determining their profit and valuing their stocks. These problems such as the profit figures computed by means of cost-volume profit techniques are variable costing not absorption costing profit.

Chakravarty⁵ has explained the problem of costing in process industries and he also explained how the problem can be solved by formulating simultaneous equation system.

Dugdale and Shrimpton⁶ have highlighted in their study on the significance of activity-based costing as a technique for modern manufacturing environment. Gupta⁷ has explained the role of activity-based costing in strategic cost analysis. Gopalkrishna⁸ has discussed the mechanism of activity based costing. Maheshwari⁹ has presented the importance of activity-based costing and more relevant than traditional costing in companies where product mix is diverse in batch size, physical size, degree of complexity and raw material

characteristics. **Cooper and Kaplan¹⁰** in their study pointed out that in recent years companies have reduced their dependency on traditional accounting systems by developing activity based costing management systems.

Gujarathi and Panda¹¹ in their study have demonstrated that in an emerging economy, like Indian, five factors namely intense competition, increase diversification and product line proliferation, dominance of overheads in the cost structure, increased automation and modernization, enhanced information processing capacity are indicative of the applicability of activity based costing.

Lewis, Mckenie and Smith¹² have made significant attempts to show the application of the probability plotting technique in the investigation of manufacturing cost variance.

Free man¹³ in his article identifies the factors that affecting on cost behaviour such as price change, volume of production, and inflation.

Mantinson and Srivastavan¹⁴ have conducted a survey of cost accounting in service industry in the United States, which revealed that 65% of the companies did not have a cost accounting system to measure the output.

Vangundy¹⁵ has explained that the method selected for costing within a specific company should be the one most likely to provide the most usable information.

Jaggi and Charnetsk¹⁶ have evaluated the existing models for cost volume profit analysis under the conditions of uncertainty and points out their perceived weaknesses such as fail to meet the desired precision needed for C-V-P decisions.

Gupta¹⁷ in his article explained that the most recent centre of attention is on containing production cost, while marketing costs being ignored, attention must be focused on marketing cost as an important component of the total cost of a product.

Harvery¹⁸ has discussed a new approach of costing system called life-cycle costing system and presented the main advantages of this approach like reducing life-cycle cost, increasing profitability and plant efficiency, also provide a major decision making and profit improving system.

Most of the above studies concentrate on different types and techniques of cost accounting but these studies not include all the techniques and systems of cost accounting.

B. COST ESTIMATION AND ASCERTAINMENT:

A number of works have been done on different aspects of cost estimation and ascertainment in different period of time. The salient features and findings of these studies are discussed below.

Grand Trait¹⁹ has discussed that the accountant is driving force in the introduction of a standard costing system. Also the accountant can obtain the recognition of his peers, notably the production and

marketing managers through carefully setting of standard and by updating them only once a year. Matsuda²⁰ has explained that the standard cost system reflect the effect of significant changes of raw material prices very rapidly and made the calculation of annual profit very precise. Wailker²¹ explained in his article the advantages of the application of simple form of standard cost systems. Such as monthly statements and other operating statistics are easily obtained, comparison of actual expenditure with budget expenditure, comparison to actual hours to estimated hours.

Smith²² has reviewed the two basic methods for analysing overhead variances. He also discussed the circumstances in which they might be appropriate and suggested a hybrid method which requires a "summary of significant cost policies".

Petri and Minch²³ have showed that the traditional variances was separated into four components such as production efficiency variance, idle capacity variance, off-capacity variances and out of pocket spending variances.

Most of the above studies centered on some cost estimation techniques such as standard cost and some aspects of variances. But these studies do not include all the techniques of cost estimation and main cost variances that give a clear picture of the operation efficiency of different companies.

C. COST ACCOUNTING PRACTICES IN DIFFERENT INDUSTRIES IN DIFFERENT COUNTRIES:

Most of the articles that are related to different cost accounting practices in different countries and explain the features that have been included in this part of the review.

Sizer²⁴ in his article explained that the failure of those who practise cost accounting to conform any uniform procedures is possibly the greatest limitation of cost accountancy. Murao²⁵ has showed that the success in development of principles and practices in cost management and its implementation in almost all sectors of the economy is bound to yield immense benefits. Coulthurst and Piper²⁶ give a broad review of the state of management accounting.

Smith²⁷ has discussed the considerable developments in technology and management techniques, due to this there has been a tendency for the indirect costs burden to be increased and prime cost to be decreased. He adds further that indirect costs now account for as much as 50 percent of total cost, this makes it much more important to get proper control of indirect costs to carry out programmes of cost reduction.

Guttikonda and Cook²⁸ have studied the relationship between general and administrative expenses and cost of production and should the general administrative expenses be included in cost of production. He emphasised that due to rapid increase in the relating size of general and administrative experience for many firms, it should be included in cost of production.

Laszlo²⁹ in his study emphasised that the actual practise differ

from the traditional elementary principles of costing and he realised that the fundamental change in costing practise would have an effect on the valuation of stocks as well as management accounting.

Peirce³⁰ in their study emphasised that all of the step towards sound budget practise have their roots deep in personnel administration.

Cooper and Kaplan³¹ in their study identify the bad information on product costs lead to bad competition strategy and they explained the steps which have to be considered in designing a new product cost system.

Mephram³² has justified the relative sales value method of apportioning joint variable cost by showing the utility of the resulting unit cost figures for profit measurement, planning and control. Harris and Chapin³³ in their study presented that when joint products are produced, joint product costs obviously arise he also added that the proper allocation of joint cost may lead to erroneous decisions with respect to output and prices. Homles³⁴ has suggested a technique of allocation joint costs and overheads in a way relevant to decision making.

Ramadan³⁵ in his article has investigated how top management in divisionalised companies perceive control costs a location for the purpose of performance evaluation. Gordon³⁶ has examined in his paper that the cost allocation aids the accountant in product costing,

budgeting and pricing decisions. He also argued aggression model to allocating service department costs through separation of total cost into fixed and variable cost. Elphic³⁷ has suggested a new approach which using matrix algebra and its solution using software for cost allocation in chemical industries. Adelberg³⁸ has demonstrated that the service department costs are allocated to production departments at the beginning of the period to facilitate the planning of product costs and at the end of the period to facilitate the control of product costs.

Razaee and Elmore³⁹ have conducted a study to determine the effectiveness and efficiency of the cost accounting system used by defence contractors. The study revealed that the cost accounting systems are mainly used to provide cost estimation and they are not used for performance evaluation or management decision making.

Agarwal⁴⁰ has explained the costing system in cement industry and the whole manufacturing course being divided into various processes and departments or cost centres. These cost centres broadly fall into three categories - production cost centres, service cost centres and overhead cost centre. Tiwari⁴¹ has studied costing in cement industry that in cement industry there are no by-products or waste products, therefore the process costing system applied is quite simple and costing in cement industry is possible by adopting an integration accounting system.

Pencras⁴² has explained that the cotton textile companies

maintain a costing system based on detailed proforma statement and he discussed couple of them are applicable in textile industry. Dey⁴³ has conducted a running survey of cost accounting practices in cotton textile industry in India vis-a-vis in other countries such as Pakistan, USA, UK. In this survey he concentrated on the progressive growth of accountability in the cost accounting record rules in India.

Raja Gopalan⁴⁴ has showed in his study the cost reduction should actually involve reduction at the operational level. Rao⁴⁵ has explained in his paper the system of costing and cost control applicable to a large public sector unit of iron or mining industry.

Kerramans Overloop⁴⁶ have conducted a study related to some practices of cost accounting in automated and mechanical producing companies. They suggested that before introducing a new cost accounting system, it is necessary to have a clear view of practice.

Bailes and Menally⁴⁷ have conducted a survey which covered 62 percent of public listed manufacturing companies in Newzealand. The survey was concentrated on four areas of cost and management accounting such as product costing, operating budget plans and reports, long range strategic plans and capital budgeting, and other management accounting techniques of decision making.

Abujamus⁴⁸ did study aimed at showing the importance of cost accounting reports and information to those incharge of cost department and to management at the Jordan shareholding industrial companies that apply cost systems. Khadash⁴⁹ did study about the

efficiency of cost accounting systems applied in Jordanian shareholders industrial companies.

Ghosh⁵⁰ has discussed the different practices of cost accounting system and control in paper industry such as how we handle material, labour overhead etc.

The above studies related to cost accounting systems and practices applied in different industries like, defence industry, cotton textile industry, coal industry, cement industry, paper industry, chemical industry. But these studies concentrate on few aspects of practices and do not show the main practices of cost accounting. Among all of these studies there was not a single study which covered the major practices of cost accounting in one country or compare the cost accounting practices in different countries.

D. COST CONTROL TECHNIQUES:

Shih⁵¹ in his article explained a general decision model for cost-volume profit analysis and the purpose of this model is to invest C-P-V analysis with realism and to remove basic deficiency from the traditional cost-volume profit model.

Murty⁵² in his study discussed how to control and reduce cost by studying the cost behaviour of each item of the element of cost. Nath⁵³ has conducted a study of cost control and cost reduction in coal industry and he indicated that in coal industry there are various types of expenditure which are subject to cost control and cost reduction.

Navalan⁵⁴ has explained in his study that cost control is one of the main objectives of cost accounting.

Saadeh⁵⁵ has conducted a study of cost control in service establishment like scientific research and commented that it is necessity especially in under developed countries which are suffering from scarcity of resources.

Arnold⁵⁶ in his study discussed the two basic approaches to cost management; budget control and cost management review. The later aims at finding the opportunities that budgetary control is unable to capture. Athreya⁵⁷ has made a significant attempt to construct a model for cost management in three stages and offer a four step action plan for strategic management of costs.

Inman⁵⁸ has suggested that in the drive for effective cost control information, the traditional usage of budgets and standards must be reviewed as far as costs are concerned. Kelly⁵⁹ has explained the significance of proper detail coded information, which can provide endless opportunities for effective cost control enlarge multi-faceted operations.

Hapkins⁶⁰ has presented a brief review of the essential features of zero-base budgeting and zero-base budgeting development.

Jha⁶¹ has explained many methods and techniques that can yield very good results for cost reductions in paper industry and he concentrated on four main areas for cost reduction namely inventory

control, cost of material handling, cost of services, scrap realisation.

Brown⁶² has suggested that the management accountant must analyse the variance data in a way which will maximise its usefulness to users. This can be achieved by emphasising trend on materially rather than concentrating on the technical procedures by which variances should be calculated and subdivided.

Most of the above studies are concentrated on cost control techniques which the management used to control various elements of cost and the studies concentrate on the methods and techniques which help in cost reductions. These studies also emphasised the importance of cost control in cost accounting. But these studies do not cover all aspects of cost control techniques.

All the studies reviewed show that most of the studies are related to partial aspects of cost accounting and very few are related to cost accounting practices. The study of cost accounting practices in different countries are very few, then what to say about comparative study of cost accounting practices in different countries. These studies clarify the fact that so far no serious attempt has been made to study the cost accounting practices in different countries. Though some studies explained the different practices but the level of the aspects discussed are shallow and concentrated in one industry only.

3.2 IDENTIFICATION OF RESEARCH GAP IN THE EARLIER STUDIES:

The relevant literature reviewed show that most of the studies are related to the different elements and aspects of cost accounting systems. Some studies also covered cost systems and techniques and others are also related to cost accounting practices. But no in-depth study has been conducted covering substantial aspects on the cost accounting practices of industrial enterprises of India and Jordan. The studies regarding cost accounting practices in industrial enterprises two countries especially of Jordan is negligible. Some experts, academicians, researchers of repute feel the need of development of the cost accounting systems and techniques in the industrial enterprises for effective and efficient cost management of the organisation. But they have not gone into the depth of the matter.

The scanning of literatures give this indication that there exists a wide gap in the existing study and a comprehensive study is needed for better application of cost accounting system. Thus, it has been decided to undertake a study which should include the different types of organisation of India and Jordan. For this purpose a comparative study of cost accounting practices of selected industrial companies in India and Jordan has been undertaken. It is expected that this study will fill the existing gap and will be helpful for practitioners, academicians and researchers.

3.3 JUSTIFICATION OF THE STUDY:

In this study attempts have been made to examine cost accounting systems of the industrial enterprises in Jordan and India as a part of the total problems relevant to the management of these enterprises. The logic behind undertaking this study is that, no matter how good and ambitious a plan is, if not properly implemented and controlled, will not give desired result. The study of cost accounting has emerged as an important area of research and investigation through out the world as it helps in the evaluation of operating efficiency of the enterprises and guides the management in cost reduction and control.

There are many reasons for undertaking this study. Firstly, it is considered necessary to analyse the cost accounting practices which is the subject matter of our study. It seeks to identify the nature, types and significance of cost accounting systems in order to find out features along with flaws in this regard. Such identification would help the management in improving the systems.

Secondly, the cost accounting practices have not been studied comprehensively in Jordan with reference to industrial enterprises. In India too the studies are not substantial. All these account for the necessity of undertaking an indepth study of the cost accounting practices in the industrial enterprises of both India and Jordan.

Thirdly, the cost accounting practices in India and Jordan can

be attributed towards the value of comparative study. Such a study may be useful for the managers and policy makers of both the countries to find out the status, features, strengths and weaknesses in the system of both the countries.

Fourthly, the reason for such an investigation can be attributed to the fact that the study would generate necessary data in a desired manner that will be useful in finding out a system that may help in the achievement of objectives of the enterprises.

The last but not the least reason of undertaking the study is that cost accounting is recognized as an important area of management accounting, may a times it has been found that deficiency exists in the system. The study thus seeks to point out those deficiencies and their impact on the organisational performance.

Under these circumstances it becomes all the more necessary to undertake a comprehensive study of cost accounting practices, so as to find out any deficiencies in the existing system. An appropriate cost accounting systems must direct the managers towards the achievement of goals and objectives effectively and efficiently. The system should also provide appropriate evaluation of measuring the operation efficiency and performance evaluation. The present study is primarily concerned with the evaluation of cost accounting system and pin points merits and demerits of the existing systems and techniques. The findings thus will be of benefit to the managers and policy makers of the concerned enterprises.

3.4 OBJECTIVES OF THE STUDY:

The main objective of the study is to evaluate and compare the status and features of cost accounting practices in the industrial companies of both India and Jordan for identification of the factors governing cost accounting practices as well as the constraints affecting its smooth operation. In this context the study specifically aims at following :

1. To study the cost accounting systems adopted by the selected industrial enterprises of Indian and Jordanian companies.
2. To compare the application of cost accounting system within a particular industry in both countries.
3. To evaluate the application of these systems within a particular industry in both countries.
4. To differentiate industry, sector and country-wise costing systems and evaluate them for application.
5. To outline the specific actions and adjustments in cost accounting practices and procedures in order to improve the situation.

3.5 SCOPE OF THE STUDY:

This study covers only the industrial sector of the both India and Jordan. The industrial sector in Jordan consists of both public and private sector. and same is the case with India. This research study

confines to private sector and public sector industrial enterprises of both India and Jordan. In each sector there are large, medium and small-scale industrial units. Out of them large-scale and medium scale industrial companies have been selected for the study.

This study is concentrated on ten selected industrial companies - five from Jordan and the rest five from India. This is a comparative study, so an attempt has been made to select only these industrial units which are dealing in similar line of business. Therefore, three industries namely, cement, fertilizers and chemicals and papers have been selected for the study. Three public sector companies covering each of the industries mentioned above and two private sector companies from the field of fertilisers and chemical and paper industries have been selected for the study from Jordan. There is no cement industry in the private sector in that country. Similarly three public sector industrial companies have been selected from three industries of India such as cement, fertilisers and chemical paper and two private sector companies have been selected from the field of fertilizers and chemical and paper respectively to make the study comparable. Relevant data essential for analysing cost accounting practices in these companies have been collected during the period 1995-97.

In analysis and interpretation of the cost accounting practices of the industrial companies, aspects like, cost accounting systems, various types of cost element, cost variance analysis, cost control

techniques, cost estimation and ascertainment, inventory control techniques have been considered for the study.

3.6 SAMPLE SELECTION:

The companies for study have been selected from two countries India and Jordan. These, countries are having many things in common, mainly they are developing countries, both countries depend on agriculture. Industrialisation has taken place in both the countries and there exist large, medium and small sector industries. In terms of ownership, the private and public sector undertaking dominate in both the economy. In this background of major similarities it was considered proper to select samples from both the countries which should represent industrial companies of both public and private sectors.

Three companies from the public sector in Jordan were selected representing cement, fertilisers and chemical and paper. Similarly two sample companies from the private sector industries in Jordan have been taken from the field of paper and fertilizers and chemical. As cement company is not there in the private sector, so it has not been included in the sample.

The companies which are based on local raw materials, economically important, provide huge direct and indirect employment and have the potential to earn large amount of foreign exchange for the country have been selected for the study.

The cement, fertilizer and chemical and paper industries of Jordan are contributing to a large extent in the development of industrial sector and for the development of infrastructure of the country. The fertilizer industry of Jordan is also earning substantial amount of foreign exchange for the country, provides good number of employment and it is also based on local raw material. So from the fertilizer and chemical industry two companies, one is Jordan Phosphate Mines Company (JPMC) representing public sector and other is Intermediate Petro-chemical (IPI) Industries from private sector have been selected for the study. The contribution of paper industry in the development of Jordanian economy, is substantial. Both public and private sector undertakings are available in paper industry, out of which two companies have been selected. One is Jordan Paper and Cardboard Factories Company Ltd. (JPCF) representing Public Sector and Arab Paper Converting and Trading (APCT) from the private sector. The cement industry of Jordan is based on local raw material and also earns foreign exchange for the country. As the cement industry in Jordan is having no private sector undertaking so only the public sector company has been considered, which is represented by Jordan Cement Factories Company (JCF).

Three companies from public sector in India were selected representing cement, paper and fertilizer and chemical similarly two sample from the private sector industries have been taken from the field of fertilisers and chemical and paper. As cement company is not

available in the private sector in Jordan, so it has not been included as sample of Indian private sector.

Two companies from paper industry have been selected namely, Hindustan Paper Corporation Limited (HPC) from the public sector and Continental Paper Limited from private sector. Fertilisers and chemical industry has made substantial contribution in the growth and development of India. It has also provided huge employment in the country. Two companies have been selected for the study of which Hindustan Fertilizer Corporation (HFC) is public sector enterprises and VAM Organic Chemicals is a private sector company. The cement industries of India is contributing in the growth of Indian economy, development of Indian industrial and construction sector. Also it is providing employment to large number of people. Cement Corporation of India (CCI) has been selected from the public sector companies, private sector company has been excluded due to non-availability of such company in Jordan in this sector.

While selecting samples enough care has been taken to see that they are related to and fall under the same industrial groups. Above, all, proper care has also been taken to choose only those companies from both the countries which are occupying dominant position in respective industrial sector in these countries.

This being a comparative study similar type of industries and companies from both the countries have been selected. The companies selected from India are larger than those of Jordan. But

there is much similarity among the companies with respect to operations, management and structure.

The present study is qualitative as well as descriptive in nature and it is based on case method of research. So out of prevailing industrial sectors of Jordan only five industrial companies from both private and public sectors have been selected on purposive sampling. Similarly five industries companies from India of similar categories have also been selected.

3.7 COLLECTION OF DATA:

Both primary and secondary sources of data have been used. The primary data have been collected with the help of questionnaire and personal interviews. The questionnaire was designed according to the objectives of the study. The higher level executives of the undertakings were supplied the questionnaire. Those executives were considered who are related with application of cost accounting systems in their organisation. The type of executives contacted were finance managers, heads of accounts or finance departments.

For the purpose of collecting information to analyse the performance of Jordanian companies sources like Ministry of Industry, Central Bank publications. Jordan government publications have been consulted. Besides, year books published by government and private organisations, annual reports of these industrial organisations, business reports published in different journals and some important dailies providing more coverage on industry have been scanned for the

purpose. In addition to the above, special attention was paid on books and research journals. While scanning secondary sources, adequate precautions have been taken about the authenticity and suitability of data and resources as well. At every step latest possible informations have been chosen to make the study topical.

Secondary sources of data were used for collecting information regarding the performance of selected enterprises of India. The main sources of secondary data used for collecting information were published materials of the respective organisation, annual reports. Public Enterprise Survey of Bureau of Public Enterprises, Year Books published by government and private organisations, business reports published in different journals and unpublished doctoral thesis on the subject.

3.8 PRESENTATION AND ANALYSIS:

The study is based on case method and the presentation has been systematically by dividing the presentation into two parts, the first part is company profile and the second part deals with the information related to cost accounting practices in the respective organisation. An effort has been made to present the company profile precisely at the one hand and should cover the major areas of the organisation on the other, so that a clear picture of the working and performance of the organisation should emerge. The purpose of presenting this profile is to analyse the cost accounting practices keeping the organisation and its working in perspective.

While presenting the cost accounting practices, due attention and care have been taken to make the presentation almost standardised. The presentation is made as per the objectives of the study. The cost accounting practices of the individual company have been analysed with a view to have an understanding about of costing system in respective organisation. This analysis covers aspects like cost accounting systems and techniques, variance analysis, standard costing, budgetary control, cost and control techniques, consolidation of analysis of cost accounting practices has been made according to industry in irrespective country. The public and private companies of respective sectors have been included in this analysis. This has been made in order to have an idea about cost accounting practices in respective industrial sector as well as to facilitate comparison of cost accounting practices among the companies of respective industry among these two countries. A comparison of cost accounting practices has been done among cement, paper, and fertiliser and chemical companies of India and Jordan separately. The strengths and weaknesses of the cost accounting system in these enterprises of India and Jordan have been presented separately. And at the end, the major findings of the study have been mentioned and recommendations for improvement in the cost accounting practices, wherever they are needed, have been made. The direction for future research in this area have also been specified at the end.

3.9 OPERATIONAL DEFINITIONS:

It is imperative that important terms of a research topic should be defined in a manner that they are not interpreted otherwise. Therefore, the terms used in the topic of research are defined below as they will carry their own significance as the research progresses.

Allocation is the allotment of whole item of cost to cost centres or cost units or refers to the charging of expenses which can be identified wholly with a particular department.

Private sector: It is a part of a nation's economy that is not owned or controlled either by the government or by nationalised or publicly owned undertakings.

Public sector: It means any industrial undertaking which is owned and managed by the government. It consists of nationalised organisations as well as enterprises promoted under government ownership and control.

Net worth: Total assets less current liabilities.

Value added: It represents value of production less cost of direct materials consumed. Cost of power/coal and oil used as fuel have been regarded as direct materials for this purpose.

Jordan cement factories company:

The name of the company in Jordan, the term factory is used alongwith them which is not a practice in India like Jordan cement factories company or Jordan paper and cardboard factories company.

Activity-based costing (A-B-C): Activity-based costing (A-B-C) which means a costing technique and ABC analysis which means an inventory control technique.

3.10 LIMITATIONS OF THE STUDY:

1. This study is confined to the selected industrial sectors of both India and Jordan. Other sectors i.e. service sector has been excluded from the study. It does not cover all the private and public sector enterprises in the respective industries of both the countries.
2. This study is a comparative one, so selection of similar type and size of industrial organisations would have been feasible. But due to non-availability of same size of companies in similar categories, varied size of enterprises in similar sectors were selected for the study. The organisations of India in public sector are larger than those of Jordanian public sector. But in private sector they are approximately similar. However, attempts have been made to select large and medium scale companies available in the respective countries.
3. This study is based on only selected industrial enterprises of both the countries. It is also confined to the limited aspects of cost accounting practices covered in the objectives and scope of the study.
4. The information and the primary data of the selected companies

were collected from the top level and middle level executives in the companies. It would have been better to collect information from the lower level management to make the study more comprehensive but due to the time and resources constraints this could not be made possible.

5. The study has been conducted during the period of 1995-97. The costing practices before the period and any change made after this period has not been covered in this study.
6. The study is related with two countries in which different languages are spoken. So firstly, the questionnaire was drafted in English and then translated into Arabic. In translation difference of terms and their understanding can not be ruled out.
7. Due to time and financial constraints this study covers ten companies including public and private sector industrial undertakings in both from India and Jordan.

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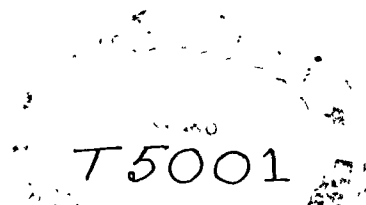
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CHAPTER FOUR

INDUSTRY PROFILE

- 4.1 Cement industry in India**
- 4.2 Paper industry in India**
- 4.3 Fertiliser and chemical industry in India**
- 4.4 Cement industry in Jordan**
- 4.5 Paper industry in Jordan**
- 4.6 Fertiliser and chemical industry in Jordan**

References

CHAPTER FOUR

INDUSTRY PROFILE

A brief description of all industries under study has been presented in this chapter with a view to give an insight to the respective industries of both India and Jordan. The information for this purpose have been presented in different sections covering cement, paper and fertilizer and chemical industries of respective countries.

4.1 Cement Industry in India

Cement constitutes a basic ingredient in the construction of any thing from a small factory to large multi-purpose project. The cement industry has been an integral component in the expansion of India's infrastructure. This eighty year old, vibrant and thriving cement industry in India with a production of 54 million tones (large plants) in the year 1993-1994, is the fifth largest cement producer after China, Russia, Japan and USA.¹ in 1995 and 1996. India has progressed more in cement production and it is ranked fourth after China, Japan and USA.² Its production was around 65.90 million tonnes in 1995 and 73.00 million tonnes in 1996 and India may rank third in 1997.³ The production performance of the largest producer in the world is given in the table 4.1.

Table 4.1**Production Performance of Cement Industry in the World**

Country	Million Tonnes	
	Cement Production (P)	
	1995	1996
China	400.70	430.00
Japan	90.30	97.00
USA	76.00	77.00
India	65.90	73.00
Russia	36.40	37.00
Italy	34.80	34.40
Other countries	695.90	708.60
World	1400.00	1457.00

Source: Basic data of cement industry, Cement Manufacturer's Association, New Delhi, 1997.

The cement industry in India has come a long way since the first bag of cement was packed in the year 1914 at Porbunder. Cement factories in India, are mainly concentrated in Madhya Pradesh, Tamil Nadu, Andhra Pradesh, Rajasthan, Gujarat, Bihar and Karnataka. The limestone reserves of these states account for 90 percent of the reserves in India.⁴ Location of a cement factory near limestone resources has its own advantages. The different varieties of cement produced in India may be described as ordinary portland, pozzolana, portland bland blast furnace

slag, special high strength cement, low heat cement, oil well cement, coloured cement and white cement. Incidentally power is considered to be a major cost of production in the manufacture of cement. Besides it is an industry which depends heavily on the policies of the government. The cement production for the last few years has been outlined in Table 4.2

Table 4.2

Production Performance of Indian Cement Industry

Year	Quantity (million tonnes)
1990-91	48.90
1991-92	53.61
1992-93	54.08
1993-94	57.96
1994-95	62.35
1995-96	69.57
1996-97	76.22

Source: Basic data of Indian cement industry, Cement Manufacturer's Association, New Delhi, 1997, p. 5.

This quantity of production includes large plants and mini-cement plants. From this table we can observe that there was phenomenal increase in the capacity and production of cement during the last seven years.

The actual production of cement in last three years is more than the targeted production. This is a good indication that the production capacity

of cement has increased annually and the performance is highly satisfactory. Indian cement industry started export of cement/clinker from 1989-90 with a modest figure of 0.08 million tonnes which reached to 2.38 million tonnes in 1995-96 and 2.72 million tonnes in 1996-97.⁵ The export consists of cement and clinker. The export performance of cement industry for the last several years is given in table 4.3

Table 4.3

Export Performance of Cement in India

Year	Quantity (million tonnes)
1991-92	0.36
1992-93	1.18
1993-94	2.85
1994-95	3.17
1995-96	2.38
1996-97	2.73

Source: Basic data of Indian cement industry VIII Plan, Cement Manufacturer's Association, New Delhi, May 1997.

The table 4.3 reveals that there is an increasing trend in value of export of cement from India. But the quantity of exports has decreased in 1995-96.

The exports has declined due to good domestic market, high government levies, increased production cost, lack of modern port

facilities, high sea freight and high cost of surface transport to ports⁶ in VIII plan, the cement industry the capacity has gone up by 9.63% and thus it has registered growth of 7.35%.⁷

The cement industry in India constitutes 57 companies, 115 plants with installed capacity of 96.25 million tonnes as on the 3rd of March 1997.⁸ The average per capita consumption of cement in India, is only 64 kg against the world average of 210 kg and 500 kg and even higher in the developed countries.⁹

The demand for cement was around 65.00 million tonnes during 1994-95 and around 87.00 million tonnes during the year 1995-2000 as per the demand projection made by the working group of cement industry.¹⁰ The Indian Institute of Management and National Council of Applied Economics Research (NCAER) has advised the development council of cement industry for manufacturing 77 million tonnes of cement, by 1996-97, keeping in view the estimated growth of the cement industry during the Ninth Plan.¹¹

The Indian government has identified cement as one of the items of “extreme focus” for export promotion and an export target of five million tonnes was fixed for 1996-97.

The Indian cement plants compare well with the best plants in the world in terms of quality, quantity, productivity, pollution control and energy conservation etc. And the quality of Indian cement is also well accepted in the international market. The main impediments to the

growth of cement industry in India are shortage of capital, power shortage, locational problems, shortage of coal, non-availability of railway wagons, defective method of transport, negligible share in world trade and technological obsolescence.¹² Cement industries are mainly situated in western and southern regions producing about 71 percent of the total output, while the northern and eastern regions account for 29 percent of total output.¹³

4.2 Paper Industry of India

Paper plays a vital role in the cultural development of human beings. Use of paper and paper products is intimately linked with the economic development of a country.

The paper industry in India is more than 110 years old. The paper industry can be divided broadly into two segments; paper and paper boards segment and news print segment. The paper and paper board segment manufactures writing and printing paper, wrapping and packaging paper, paper-board and speciality paper. Further, based on the raw materials used, the industry is classified into three categories. The forest-based paper mills, which use bamboo and wood pulp as raw materials; the agro-based mills, whose raw materials include bagasse and agro-wastes and other paper mills, which are mostly waste-paper based.

As on March 1995, there were around 380 paper mills with a total capacity of 38.4 lakh tonnes per annum.¹⁴ Of these paper mills , 33 were

large integrated units and large number of small or medium sized units. Large number of small units based on second-hand machinery and out-dated technologies were set up in the seventies and eighties. These small units with uneconomic capacities later became sick, it is estimated that out of the 380 paper mills, 150 are laying closed.¹⁵

The paper and paper Board production may be classified under different categories and 54 sub-categories.¹⁶ There are printing papers, which include white printing, colour printing, Litho and Offset, Maplitho printing S/C, cantidye duplicating and other kinds. Writing paper which includes cream wove laid, a Zure laid wove, drawing and cartridge paper, account book, bank bond, manifold, type writing, air mail and other kinds. Wrapping paper which include K.G. poster, M.G. poster, Kraft, brown Mateter, Manilla and other kinds. Tissues which include tissue white and tissue coloured special paper including cigarette tissue, glassine, grease proof, chrome proof, art paper cheque paper, imitation paper, white impressioned, bloffing paper, airmail, special carbonised tissues and telegraph cassings. Rag paper (51% and above) which include Azure and laid bank and bond manifold, carbonising tissue, account book, base paper and other kinds. Boards which include duplex, triplex, ticket board, pulp board, gray board and other kinds. Special board includes chrome boards and art board. Straw board includes K.G. poster, M.G. poster, Kraft, brown Mateter, manilla and other kinds.

The total production of paper industry in India for the last few years has been outlined in table 4.4.

Table 4.4

Production Performance of Indian Paper Industry

Year	Production	Capacity Utilization %
1990-91	20.60	62
1991-92	21.11	63
1992-93	21.28	60
1993-94	22.71	60
1994-95	25.70	67

Source: The Economic Times, August 15, 1995.

The table 4.4 reveals that there is an increasing trend of production of paper and the performance is also satisfactory.

According to the annual survey of industries,¹⁷ there were 927 paper Factories in 1992-93. The industry performed poorly between 1986-87 and 1988-89. In these years, the industry recorded net losses the only exception being 1984-85. During this period sales grew at an average rate of 9% whereas raw materials cost grew by 16%. However, in 1989-90, the industry recovered completely and recorded profit, with a profitability of 5.3%. In 1991-92 the net profit margins were similar to that of the preceding year. However, in the next two years profitability declined sharply and in 1992-93 it was just 2.2%. Aggregate financial statements of a sample of 51 companies indicate that the total sales of these companies grew by 18.8% in 1994-95. Profit after tax went down to a rate of 34% compared with the 60.7% growth recorded in 1993-94. Net

profit margins in the year 1994-95 was 6.92 was the highest 50% for recorded by the paper industry. Operating margins have grown from 15.7% in 1992-93 to 16.8% in 1994-95.

The level of development of a country or the level of standard of living of its people is often measured by the per capita consumption of paper. The per capita consumption of paper in India is the lowest of about 4 kg.¹⁸ Compared to 13 kg in Turkey, 26 kg in Brazil, 37 kg Malaysia, 151 kg in Britain, 153 kg in Japan, 168 kg in Switzerland and 289 kg in USA. Even in countries like Indonesia per capita paper consumption is over 10 kg.¹⁹

The present position of the paper industry is divided into two sector - first is large integrated sector in which there are 20 large factories and second is small 254 factories producing paper and board. Thus, at present there are 284 large and small factories. More than 50% contribution to the paper industry is from the small sector.²⁰

The demand for paper and paper board in India is expected to grow from the current 3.5 million tpa to 9.7 million tpa by the year 2010, corresponding to an average long-term growth of 7 percent per annum or over 400,000 tpa.²¹

The recent trends of the production of paper and paper boards accelerated for the second year in succession despite a steep rise in the price of pulp in the international markets. With the escalation in the international price of paper, there was a spurt in the export of paper and

paper products in 1994-95. Domestic demand is also rising from the industries segment to meet the demand for packaging and related activities.

Official statistics on paper and paper boards indicate a persistent decline in production since August 1995. During January 1996, production of 2.34 lakh tonnes was 15 percent lower than the 2.77 lakh tonnes produced in January 1995.²² Production of paper during the period April 1995 to January 1996 was 4 percent lower than that in the corresponding period of 1994-95.²³

The paper industry finds itself saddled with an acute shortage of raw materials, particularly pulpable wood, combined with a static technology of production. Bamboo and pulpable timber continue to be the basic raw materials for paper industry.

The paper prices are falling sharply in the international market, the Indian paper industry is in for a difficult year ahead. Import duty was slashed in 1995 from 65 percent to 20 percent in two strokes between March and May year.²⁴ The Indian paper industry was, however, not affected as international paper prices were higher than the domestic prices even after taking into account the reduction in import duty. The paper prices in the international market plummeted by 30-45 percent between August-September 1995 and March 1996, and consequently domestic industry is not in a disadvantages position.²⁵

The domestic industry is faced with a threat of being dumped by

foreign paper companies and slump in exports. This is also due to the fact that huge capacities have come up in South-East Asian countries as Indonesia in the recent year.

The landed cost of imported paper works out to be cheaper than the current domestic prices. The domestic manufacturers are of the opinion that the government should step in by increasing import duty to protect them.²⁶

4.3 Fertilizer and Chemical Industry in India

India is basically an agricultural country and so it has a huge domestic demand for fertilizer to boost agricultural production. It has been estimated that about 70 percent increase in agricultural production can be attributed to increase fertilizer application.²⁷ The systematic planning and development for the last four decades has brought India to the front line of fertilizer producing countries. Today it is the third largest producer of nitrogenous fertilizer in the world.²⁸ Its share in the world production is 9.30 percent. At present there are 57 fertilizer units manufacturing a wide range of nitrogenous and complex fertilizers, including 9 units producing ammonium sulphate as a by-products.²⁹ In addition there are about 80 units producing single super-phosphate.³⁰

The fertilizer industry produces a wide variety of fertilizer products. Broadly the products are classified in two categories nitrogenous and phosphatics. The nitrogenous family covers urea, ammonium sulphate, calcium ammonium nitrate, ammonium chloride and ammonium nitro

phosphate, and the phosphatic family covers single super phosphate, di-ammonium phosphatic, triple super phosphate and various N-P and N-P-K complex grades. Among them urea is the most popular and the most extensively used and produced fertiliser in India. The primary raw material used by the industry are phosphatic acid, sulphuric acid, rock phosphates, sulphur potash, ammonia, natural gas, naphtha, coke and electronic power. The shortage of some primary raw materials is a perennial problem for the fertilizer industry. The country is self sufficient in naphtha availability.

India has emerged as the third largest producer and consumer of fertilizer. The production of nitrogenous fertilizers during 1994-95 stood at 90.5 lakh tonnes recording an increase of about 15.4 percent over 1993-94.³¹ In 1995-96 the production of nitrogenous and phosphatic fertilizers was to further increase to over 113 lakh tonnes (86.33 lakh tonnes of nitrogen and 26.67 lakh tonnes of phosphate).³²

Production of ammonium sulphate has increased from 3.67 lakh tonnes in 1959-60 to 5.85 lakh tonnes in 1994-95.³³ Production of ammonium sulphate nitrate was 0.21 lakh tonnes in 1959-60 and 0.43 lakh tonnes in 1969-70.³⁴ After that ammonium sulphate has not been produced. The production of urea, which was 3800 tonnes in 1959-60 has increased to 141.37 lakh tonnes in 1994-95.³⁵ The production of calcium ammonium nitrate has increased from 4.65 lakh tonnes in 1979-80 to 5.71 lakh tonnes in 1994-95.³⁶

Production of phosphatic fertilizers during 1994-95 is 24.37 lakh

tonnes.³⁷ Production of single super phosphate (SSP) was estimated 27 lakh tonnes during 1994-95 but the actual production was 25.56 lakh tonnes and expected was to go upto 30 lakh tonnes during 1995-96.⁵⁸

The capacity utilization of nitrogenous fertilizers, was 53% in 1981-82. This increased to 88.7% by 1991-92 and it declined to 84.1% in 1993-94.³⁹ In 1994-95, the capacity utilisation was 88.9%.⁴⁰

During the April-December 1993 the fertilizer production declined to 10.6 percent.⁴¹ The production of nitrogenous fertilizers was 72.31 lakh tonnes.⁴² The short-fall in production was mainly due to reduced gas availability, equipment problem and poor performance of two sick public sector companies.⁴³ The production of phosphates in 1993-94 was 18.16 lakh tonnes against a target of 22 lakh tonnes.⁴⁴ The short-fall in production was the consequence of several policy changes like decontrol of phosphatic fertilisers in August 1992.⁴⁵ The production of fertiliser industry for the last few years is given in table 4.5.

The table-4.5 reveals that the production of fertilizer was reduced in 1993-94 by 6.9 percent over the year 1992-93. And subsequently it has increased.

Table 4.5**Production Performance of IFI**

Year	Nitrogen	Phosphatic	Total
1987-88	54.65	17.02	71.67
1988-89	67.12	22.89	90.00
1989-90	67.47	18.34	85.81
1990-91	69.93	20.88	90.71
1991-92	73.01	25.96	98.97
1992-93	74.30	23.55	97.85
1993-94	72.31	18.74	91.05
1994-95	79.44	25.56	105.00
1995-96	86.33	26.67	113.00

Source: Food and Agriculture organisation of the United Nations (FAO), Statistics series No.31, Vol. 45, 1995, pp. 25, 61.

The consumption of chemical fertilizers, which was only 0.13 million tonnes in nutrient terms in 1955-56 increased to 13.56 million tonnes in 1994-95.⁴⁶ The overall increase in fertilizer consumption during 1994-95 over 1993-94 was 9.7 percent.⁴⁷ While the increase in potash consumption was 23.9% during 1994-95 over the previous year, the consumption of nitrogenous and phosphatic fertilizers increased by 8.2 and 9.9 percent respectively during 1994-95.⁴⁸ The consumption of chemical fertilizers for the last several years has been pointed out in table 4.6.

Table 4.6**Consumption of fertilizer in India****(Million tonnes of nutrients)**

Year	Nitrogen	Phosphate	Potash	Total
	N	P	K	NPK
1987-88	5.7	2.2	0.9	8.8
1988-89	7.3	2.7	1.1	11.1
1989-90	7.4	3.0	1.2	11.6
1990-91	8.0	3.2	1.3	12.5
1991-92	8.0	3.3	1.4	12.7
1992-93	8.4	2.9	0.9	12.2
1993-94	8.8	2.7	0.9	12.4
1994-95	9.5	2.9	1.1	13.5
* 1995-96	10.8	3.6	1.3	15.7

*** Estimated****Source: Economic Survey 1995-96.**

It shows that there is growing trend of fertilizer consumption in every year and the consumption is the highest in 1995-96.

In order to meet growing domestic demand of fertilizer in the country it has to import huge amount of fertiliser every year. This import mainly constitutes nitrogenous fertilizers particularly urea category. Besides this the country is taking steps for establishing new fertilizer enterprises. The import of fertilizer for the last few years has been outlined in table 4.7.

Table 4.7**Import of Fertiliser in India**

Year	Quantity (000MT)	Value (Rs in Cr)
1987-88	984	NA
1988-89	1615	NA
1989-90	3113	1803
1990-91	2754	1766
1991-92	2770	2352
1992-93	2961	2831
1993-94	3173	2607
1994-95	3131	NA

Source: FAO 1995, op.cit. p. 115 and Economic Survey 1994-95, p. 128.

From the table 4.7 it is seen that the amount of imports of fertilizer has increased by 44.59 percent in 1993-94 over 1989-90. This is due to increase in volume of imports as well as increase in price of imported fertilizer. The quantity of import also increased almost every year. The government trying to reduce imports by improving capacity utilisation of its plants.

Prices of fertilizers changes as per change in raw material prices and costs of other factors. The prices of urea has been on the rise specially due to shortage of urea in recent times mainly after break-up of of USSR and lack of coordination between CIS countries. The prices of

urea in the international market also changed due to change in price of natural gas. The international price of urea which was \$ 80 per tonne in 1992-93 has increased to around \$ 245 per tonne in March 1995.⁴⁹ In August 1992, price of urea was Rs. 3060 per tonne which was reduced by 10 percent after deregulation of P and K. Price in August 1993 was Rs. 2760 per tonne.⁵⁰ Currently market price of urea is around Rs. 3320 per tonne.⁵¹ The ministry of fertilizer has recommended that the present subsidy of Rs. 1700 per tonnes should be continued.⁵²

The prices of phosphatic and potassic fertilisers are constantly rising since decontrol. Price of DAP in September 1992 was Rs. 3482 per tonne before decontrol which was immediately after decontrol.⁵³ Around doubled to Rs. 5418 - 5717 per tonnes.⁵⁴ In 1995 the price of DAP stand at around Rs. 11000 per tonne, showing an increase of more than 2000% since decontrol.⁵⁵ The price of SSP has increased by 158% since decontrol, stand at Rs. 3200 per tonne in 1995.⁵⁶ Price of MOP has increased from Rs. 1698 per tonne before decontrol to Rs. 4152 per tonne during the kharif 1995-96.⁵⁷

The manpower position of fertilizer industry is 350/000 employees. The number of employees in public sector enterprises alone is more than 50,000.⁵⁸ The number of persons associated indirectly with the industry is quite enormous if people employed by way of marketing, distribution and promotion of fertilizers are taken into account. The creation of new demand and substantial addition to capacity has generated employment potential in the industry on a large scale. Along with engineering capacity

the fertiliser industry has also developed a wide and diversified manufacturing capability for equipment required for fertiliser plants can be manufactured in the country.⁵⁹

At present fertiliser industry in India is divided in three sectors, public sector, private sector and cooperative sector. In April 1978, two large enterprises of public sector namely fertiliser Corporation of India and national fertiliser limited were divided into four enterprises. These four enterprises are fertiliser corporation of India, National fertiliser limited, Hindustan Fertiliser Corporation Limited and National Fertilisers Limited. In addition to these enterprises, there are some other factories in the public sector such as; the fertiliser corporation of India, national fertiliser limited, Hindustan fertiliser limited, National chemical and fertilisers limited, Madras fertiliser limited in cooperative sector. There is large enterprise named India farming fertilisers cooperative under which three factory are working which have at Kalol, Kandla and Phulpur. In private sector there are many factories working in private sector which are situated at Kanpur, Kota, Goa, Vishakhapatnam, Tulikoran, Baroda, Mangalore, Ennore, Varanasi and Kakinada.

Cement Industry in Jordan

Jordan in Brief:

Jordan is one of the middle east countries. A combination of its climate, geographical variety and strategic location midway between east and west in the heart of the middle east and the cross roads of

Europe, Asia and Africa, at least the Jordan was continuously inhabited throughout ancient history. The total area of Jordan is around 96,000 square kilometers, with a total population of around 4.5 million. Jordan have a climate of eastern mediterranean. Rain falls from November to March in the north and middle, while Aqaba on the red sea is waven and sunny winter resort. Amman is the modern and ancient capital of Jordan. The city, with it's population of about 1.5 million is a busy commercial and administrative centre. Jordan has an open market economy that is evident in various legislative rules and utilising a modern industrial infrastructure which has enthusiastically enhanced the private sector and international concerns to participate in development schemes. The main language of Jordan is Arabic with English spoken widely.

Cement Industry in Jordan

Cement is one of the largest industry in Jordan. The cement constitutes a basic ingredients in the construction of small and large buildings and factories. The cement industry of Jordan has contributed immensely in the development of Jordan economy. Jordan Cement Factories Company is the first company established in December 1951. It is the first shareholders industrial company in Jordan with capital of one million Jordan dinar. This is now 46 years old, vibrant cement industry of Jordan with a production of 3.5 million tonnes in the year 1996.⁶⁰ The cement industry of Jordan has come along way since the first bag of cement was packed in the year 1954 at Fuhies near Amman.

In August 1981 another company of cement industry was established under the name of South Cement company. But this company no longer exists as in December 1985, it merged with Jordan Cement Factories Company and became one company controlled by the government. The capital increased from one million J.D. at the time of establishment to J.D. 50 million in 1985 after they merged and the capital further increased to more than 60 J.D. million in 1991.⁶¹ The cement industry in Jordan started in 1954 with a capacity of 200 tonnes daily and this capacity increased to 3.5 million tonnes in 1996.⁶² Cement factories in Jordan are mainly concentrated in Fuhies and Rashadieh. Location of cement factory near limestone resources has its own advantages. The different varieties of cement produced in Jordan may be described as ordinary portland, pozzolana portland, white cement, special high strength cement. Incidentally power is considered to be a major cost of production in the manufacturing of cement. Besides it is an industry which depends mostly on the policies of the government.

The cement production for the last few years has been outlined in table 4.8.

From this table-4.8 we can observe that there was phenomenal increase in the production of cement industry during the last 5 years. the production of cement in Jordan in 1954 was 86 thousand tonnes and it increased to 3.5 million tonnes in 1996, around 41 times registering an annual growth rate of 10%.⁶³ The domestic consumption increased from

78000 in 1954 to 2.7 million tonnes at the end of 1995 with growth rate 8.5% per annum.⁶⁴

Table 4.8

Production Performance of Jordan Cement Industry

(Lakh tonnes)

Year	Quantity
1987	23.73
1988	17.80
1989	19.30
1990	17.38
1991	16.74
1992	26.51
1993	34.37
1994	33.92
1995	34.14
1996	35.12

Source : Annual Report of Jordan Cement Factories Company, Jordan, 1996, p. 11.

The Jordan cement industry started export of cement from 1962 with a modest figure of 8900 tonnes which reached to 8 lakh tonnes in 1994 and 9.5 lakh tonnes in 1996.⁶⁵ The export consists of cement and clinker. The export performance of cement industry in Jordan for the last several years is given in table.

Table 4.9

Export Performance of Cement in Jordan

(Lakh tonnes)

Year	Quantity
1987	07.38
1988	02.07
1989	04.34
1990	14.10
1991	12.80
1992	10.41
1993	07.44
1994	08.87
1995	07.08
1996	09.5

Source : *Annual Report of Jordan Cement Factories Company, Jordan, 1996, p. 11.*

The table 4.9 reveals that the export of cement in the country for the last few years is more and less stable except in the year 1990 when the export is the highest.

The cement exports is less stable from Jordan due to instability in economic and political conditions in the middle east in general and around Jordan in particular such as the Iran-Iraq war and Gulf war has also affected export. The other factors are the lack of modern facilities,

high sea freight etc. The Jordan consumption of cement per capital was around 476 kg in 1994.⁶⁶

The Jordan cement plants compare well with the best plants in the world in terms of quality, productivity, pollution control and the quality of Jordan cement is also conforming to BS-12/89 British Standards and conforming to ASTM C150 Jordan cement is considered one of the best quality cement overall the world. The main problems to the growth of cement industry in Jordan are shortage of capital, high cost of fuel and electricity that led to high cost of production, negligible share in the world trade, technological obsolescence, high transportation cost.

The total man power employed in cement industry of Jordan was 2592 at the end of 1995.⁶⁷ They are qualified people and continuous training programmes and other facilities are provided to them to motivate and keep them satisfied.

The future plan of Jordan cement factories is to improve production by increasing the production capacity and changing the plant and machinery.

PAPER INDUSTRY OF JORDAN

Paper plays an important role in the development of human society. Use of paper and paper products is intimately linked with the economic development of a country. Paper industry is one of the main industry in Jordan. It is more than 25 years old. The paper industry of Jordan is divided into two segments, the paper boards segment and news print

segment. The paper and paper boards segment includes manufacture of pulp paper, paper board, container, and boxes. This sector has continued to benefit from the steady growth in global demand for printing and publishing. The long standing national boom in education with near 1.2 million students in schools and universities in 1994, also contributes to the steady growth in demand for this sectors products. This is evidenced not only by the rise in the number of firms from a low of 166 in 1989 to 316 in 1993 and the number of employees from 3091 to 5389 for the corresponding period, but also in the steady and substantial rise in total sales and value added, particularly in 1993.⁶⁸ Sales have grown from US \$ 81 million in 1989 to US \$ 141 million in 1993, while value added surged from US \$ 29 million to US \$ 50 million.⁶⁹

The paper production in Jordan for the last few years has been outlined in table 4.10.

It is worthwhile to note that the role of of printing and publishing in recent years, assumed a greater relative importance in comparison with the paper sector both in terms of value and total sales added. In 1989 the paper sector contributed to even 70.8% of total sales (i.e. US \$ 57.4 million) and 62.6% of value added (i.e. US \$ 18.2 million) whereas in 1993 these figures declined to 56.9% (i.e. US \$ 80 million) and 41.5% (US \$ 21 million) respectively.⁷⁰

Table 4.10**Production Performance of Jordan Paper Industry**

Year	Value (1000 US \$)	Production (1000 Ton)
1989	81030	22.3
1990	93497	22.6
1991	98639	21.2
1992	113828	17.0
1993	143544	16.0
1994	NA	17.6
1995	NA	13.7
1996	NA	17.8

Source : Monthly Statistical Bulletin, Central Bank of Jordan, Vol. 23, March 1997, p. 85 and Yearly Statistical Series (1964-93), Central Bank of Jordan, October 1993, p. 51.

The sector's overall contribution to total industrial sales grow from a low of 3.4% in 1989 to 4.8% in 1993.⁷¹ Its contribution to the aggregate industrial value added improved from 2.6% in 1989 to 4.6% in 1993.⁷² The exports to sales ratio, however did not show noticeable improvement and has not reached to its 19.2% level of 1989.⁷³ It stood at 13.3% in 1993, up from a five-year low of 7.7% registered in 1997.⁷⁴

The export performance of paper industry of Jordan has been outlined in table 4.11.

Table 4.11

Export Performance of Paper Industry of Jordan

(Million J.D)

Year	The value of Quantity
1990	8.4
1991	8.3
1992	6.0
1993	13.0
1994	12.0
1995	14.0
1996	22.0

Source : Facts and Figure, Amman Chamber of Industry, Jordan, May 1997, p. 12.

The table 4.11 reveals that there is increasing trend of export of paper of Jordan except in the year 1992 when declined.

The total fixed assets of the paper industry of Jordan was 65.550 million US \$ in 1993.⁷⁵ The total employees in this industry in 1993 was 5389 the value added was 50.087 million US \$, the sales value 141 million US \$. The value of electricity and fuels used in paper industry was 2.2 million US \$.⁷⁶

The paper industry of Jordan finds itself saddled with shortage of raw materials, particularly pulpable wood, combined with static technology

of production.

FERTILIZERS AND CHEMICAL INDUSTRY OF JORDAN

The fertiliser and chemicals industry of Jordan has been playing a dominant role in attaining food production and boosting other agriculture production. All fertilizer enterprises in Jordan belong to public sector. These are managed and controlled by Jordan Phosphate Mines Company (JPMC) which is almost government owned. The JPMC was established as a private company in 1935, to exploit phosphate deposits in Rusaifa. In 1953 it became a public share holding company. The company started production in 1962 from Al-Hassa Mine located about 136 km South of Amman and 200 km north of Aqaba port. Production from Al-Abiad mine started in 1979 which is located about 20 km north of Al-Hassa mine. In 1988 the production started from Eshidiya mine which is located about 125 km north east of Aqaba. In 1982, a fertilizer complex constructed about 17 km south of Aqaba to produce phosphoric acid, diammonium phosphate (DAP) and aluminium Fluoride.

Expansions and new cooperation schemes are currently underway to maximize utilization of Jordan's natural resources by setting up joint ventures for new capacities and for new down stream products.

Phosphate rock exploitation in Jordan started in late thirties from Rusaifa, area, about 15 km north east of Amman. The production started in 1962 from El-Hossa mine which is located about 136 km south of Amman and about 200 kms from Aqaba port. The expansion of the

company activities continued both by increasing production from mines and exploiting new phosphate deposits. The production started in 1979 from El-Abiad mine situated about 20 kms north of El-Hassa mine.

The production from Eshdiya mine started in 1988 and reach to 3.5 million tonnes in the year 1996 and expected to reach 12 MTPY in the year 2000 when it will replace the existing mines of El-Hassa and El-Abiad.⁷⁷

The production capacity of the existing mines are 10.5 million tones per year.⁷⁸ Production of fertiliser industry in Jordan was started at Aqaba fertilizer complex in 1982, with a design capacity of 1,188,000 tpy sulphuric acid, 412,500 tpy (p205) of phosphoric acid, 740,000 tpy of DAP and 20,000 tpy aluminium fluoride.⁷⁹ The production of fertiliser industry for the last few years has been given in table 4.12.

The table-4.12 reveals that the production of fertilizer was reduced in 1992 by 50.4 percent over the year 1991. And subsequently it has been increased. The production in 1996 has increased substantially.

Due to strict control procedures in all stages of production in mining and processing of all operating mines, Jordan phosphate mines can supply and produce any grade of phosphate rock according to the requirements of its customers.

Table 4.12**Production Performance of Jordan Fertilizer Industry****(1000 tonnes)**

Year	Phosphate (P)	Potash (K)	Total
1987	6845.4	1203.2	8048.6
1988	5628.2	1298.9	6918.1
1989	6635.6	1350.7	7986.3
1990	5748.1	1415.1	7163.2
1991	4460.8	1451.1	5875.9
1992	4295.9	1260.8	5556.7
1993	4221.8	1446.2	5668.0
1994	4216.5	1550.3	5766.8
1995	4983.9	1780.0	6763.9
1996	5421.5	1765.5	7187.0

Source : Statistical Series (1964-1993) Central Bank of Jordan, and
Monthly Statistical Bulletin, Central Bank of Jordan in
1997, p. 84.

A single superphosphate fertilizer plants (SSP) was constructed at EL Abiad mine in 1990, with a capacity upto 30,000 tpy.⁸⁰ The same plant can produce triple super phosphate (TSP). In addition to that JPMC is planning to build a triple super phosphate plant at Eshidiya by using the phosphate and phosphoric acid to be produced at the same site.

Phosphate rock is a vital natural resources and is the main source

of phosphorus which is one of the primary plant nutrients. Almost 90% of the mined phosphate rock is used in agriculture, primarily in the production of soluble fertilisers.⁸¹ The other 10% is used in chemical industries and is commonly used in livestock feed supplement, detergents, pesticides, soft drinks, safety match heads, aluminium, polish, timber, photographic films, tooth pastes, shaving cream, soaps, cosmetics, textile dyes, gasoline and oil additives etc. Most of the phosphate rock is chemically processed into soluble fertilizer products, such as single super phosphate (SSP), triple super phosphate (TSP), nitrophosphate (NP) and Phosphoric acid (H_3PO_4). Phosphoric Acid is the basic intermediate used for the production of high analysis fertilisers such as monoammonium phosphate (MAP), diammonium Phosphate (DAP) and compound fertilizer (NPK). The total consumption of fertilizers went up from 6500,000 tonnes in 1983-84 to 1,70,30,000 tonnes in 1993-94.⁸²

The table 4.13 shown that there is unstable consumption in different years due to the non-availability of total figures of different types of fertilizers. The consumption was the highest in 1988-89.

Table 4.13**Consumption of Fertiliser and Chemical Industry in Jordan****(1000 Tonnes)**

Year	Phosphate Fertiliser	Concent super phosphate	Ammonium phosphate	Other complex Fertiliser	Total
1987-88	3897	1167	1091	1639	7794
1988-89	9239	1840	5060	2339	18478
1989-90	5000	NA	5000	NA	10000
1990-91	4600	NA	4600	NA	9200
1991-92	4582	NA	4140	442	9164
1992-93	1413	NA	1413	NA	2826
1993-94	8515	NA	8515	NA	17030
1994-95	8000	NA	8000	NA	16000

Source: FAO 1995, op.cit., p. 85.

Jordan is considered to be the world's fifth largest phosphate rock producer and the second largest phosphate rock exporter.⁸³ All phosphate from all mines are transported to Aqaba port either by trucks or railway. The important export of fertilisers for the last few years has been given in Table 4.14.

Table 4.14**Import & Export Performance of Fertiliser and
Chemical Industry in Jordan****(1000 Tonnes)**

Year	Export (thousand tonnes)	Export J.D. Million	Import
1987-88	1095	N.A.	13
1988-89	1184	N.A.	20
1989-90	1126	N.A.	21
1990-91	1235	N.A.	13
1991-92	1217	N.A.	15
1992-93	1104	N.A.	14
1993-94	1214	282	23
1994-95	1352	340	23
1995-96	NA	382	N.A.

Source: FAO 1995, op.cit., p. 116.

The table 4.14 indicates that there is an increasing tendency of exports in both quantities and value. The import of fertiliser is also less stable but in the last four years it is increasing and it was the highest in the year of 1993-94 and 1994-95.

Jordan phosphate rock has been marketed on an international basis for the past 60 years and has established itself as prime source in the global fertiliser industry. JPMC products conform with the international

and regional environmental policies. The company has been successfully exporting its products to more than 30 countries.

Worldwide it is ranked the second largest exporter.⁸⁴ JPMC achieved a steady presence in the international market, gaining a market share of about 15% of the total international trade.⁸⁵ This ratio is expected to increase in future due to the depiction of indigenous reserves and the competitiveness of JPMC products in the new phase of market economies. Sales to Asia represents over 35% of JPMC's exports and JPMC's share in certain countries is now more than 80%.⁸⁶ All of JPMC's DAP production exported to more than 20 countries around the world but much are India, Ethiopia, Saudi Arabia and Iraq.⁸⁷

JPMC adopted a policy towards establishing joint venture project with its customers to manufacture phosphoric acid, phosphatic fertilizers and other products. These projects are Jordan-Japan NPK plant, The Indo-Jordan Plant, The Jordan-Pakistan project.

JPMC plays an important role in Jordan's economy by providing a vital source of foreign exchange as well as being a major employer of the Jordan work force. Currently, the total number of employees at JPMC is around 5500.⁸⁸ The company's capital has increased several times since its inception and has reached 44 million JD in 1994.⁸⁹

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CHAPTER FIVE

CASE STUDIES OF INDUSTRIAL ENTERPRISES OF INDIA AND THEIR COST ACCOUNTING PRACTICES

5.1 CASE STUDY 1

5.1.1 The Cement Corporation of India (CCI)

5.1.2 Cost Accounting Practices in CCI

5.2 CASE STUDY 2

5.2.1 The Hindustan Paper Corporation (HPC)

5.2.2 Cost Accounting Practices in HPC

5.3 CASE STUDY 3

5.3.1 The Continental Paper Limited (CPL)

5.3.2 Cost Accounting Practices in CPL

5.4 CASE STUDY 4

5.4.1 The Hindustan Fertilisers Corporation (HFC)

5.4.2 Cost Accounting Practices in HFC

5.5 CASE STUDY 5

5.5.1 The VAM Organic Chemical Limited (VAM)

5.5.2 Cost Accounting Practices in VAM

CASE STUDIES OF INDUSTRIAL ENTERPRISES OF INDIA AND THEIR COST ACCOUNTING PRACTICES

This chapter presents the case studies of Five industrial enterprises of India. These enterprises are related to three groups of industries. The Cost Accounting Practices (CAP) in these enterprises have also been highlighted at the end of each case study. This study is based on data and information collected through field study. The case studies of the enterprises with their cost accounting practices have been presented in separate sections and sub-sections.

CASE STUDY -1

5.1.1 The Cement Corporation of India (CCI)

A General Information:

Cement Corporation of India was set up in January 1965 as a company wholly owned by Government of India with the principal objective of exploration and setting up of sufficient manufacturing capacity of cement in public sector so as to help in achieving targets of demand as projected from time to time.

The authorised and paid-up capitals of the company as on 31.3.1994 were Rs. 700 crores and Rs. 394.23 crores

respectively. The amount of loan outstanding on 31.3.1994 was Rs. 320.88 crores, out of which Rs 163.53 crores was from central government. At present Cement Corporation of India Ltd. has eleven operating units/plants in Madhya Pradesh, Karnataka, Himachal Pradesh and Andhra Pradesh with their corporate office at New Delhi. In addition to these operating units, the corporation is implementing some new schemes including a one million project at Yerraguntle at Bhiwani in Haryana. The total installed capacity of all the units is 42.16 lakh against which the actual production during the year 1993-94 was 28.10 lakh MT compared to 29.63 lakh MT during 1992-93. The only product of CCI is cement.

The basic type of technology being used in manufacturing is of two types; semidry and the dry ones. The approximate turnover of last 3 years were 485.26 crores in 1993-94, 401.46 crores in 1994-95 and 434.34 crores in 1995-96.

B. Production Performance: The CCI is a company wholly owned by the government of India under the Ministry of Industry, Department of Heavy Industries. The production function is performed by the General Manager of all plants. He executes policies and strategies set by the corporate office. He is responsible to the board for effective performance of the plant. The production performance of CCI for the last few years is given

in table 5.1

Table 5.1
Production Performance of CCI

Year	Installed Capacity	Actual Production (Lakh tonnes)	Percentage of Capacity Utilisation
1987-88	37.45	22.25	60
1988-89	37.45	24.77	66
1989-90	37.45	27.66	74
1990-91	37.45	NA	NA
1991-92	42.16	31.62	75
1992-93	42.16	29.63	70
1993-94	42.16	28.10	67

Source: Public Enterprises Survey, Department of Public Enterprises,
Ministry of Industry, New Delhi, 1989-90 to 1993-94

The analysis of table 5.1 reveals that the capacity utilisation of CCI has fluctuated in every year. The capacity utilisation was highest in 1991-92 and least in the year 1987-88. The production during the year 1993-94 was affected due to infrastructural constraints related to power wagons and coal. The performance was also affected due to curtailment of production in some of the units as there was negative contribution due to lower realisation in the associated markets in the central and

eastern region.¹

C. Marketing Performance:

The marketing function of CCI is performed by its marketing divisions located in different states of India. This division is headed by a GM (Marketing) who together with his subordinate executive, perform the function of selling and distribution of products. The sales performance of CCI for the last few years is specified in table 5.2

Table 5.2

Sales Performance of CCI

Year	Net Sales (Rs in Lakhs)	Percentage change Over Previous Years
1987-88	18489	--
1988-89	20826	12.6
1989-90	26242	26.0
1990-91	N.A.	N.A.
1991-92	45261	N.A.
1992-93	41517	(8.3)
1993-94	39928	(3.8)

Source: Public Enterprises Survey, Department of Public Enterprises,
Ministry of Industry, New Delhi, 1989-90 to 1993-94

The analysis indicates that the sales performance of the

company has been increasing from 1987-88 to 1989-90 and decreasing from 1991-92 to 1993-94. The variation in the rate of net sales experience an increasing trend. The price of its products is fixed by the Government.

Financial Performance:

The financial performance of the corporation has been pretty disappointing for a long period of time. It has not earned any profit during this period Moreover, the magnitude of losses are also very high. The company has not paid dividend for many years and the net worth of the company has decreased during the last five years. The financial performance of the company is given in table 5.3

The table 5.3 indicates that the net loss of the company has been increasing alarmingly every year. It is increased by Rs. 10116 lakhs in 1993-94 in comparison to 1987-88. It represent 220.05 percent increase of Net loss over the year 1987-88 and 182.5 percent over the previous year due to these net losses in every year the company could not declare any dividend.

Table 5.3**Financial Performance of CCI**

(Rs. in Lakhs)

Year	Net Profit/ Loss	Percentage change Over Previous Years	Dividends
1987-88	(4597)	--	--
1988-89	(4663)	+1.4	--
1989-90	(6288)	+34.84	--
1990-91	N.A.	N.A.	--
1991-92	210	N.A.	--
1992-93	(5208)	-2580.0	--
1993-94	(14713)	+182.5	--

* Figures in parentheses indicate loss.

Source: Public Enterprises Survey, Department of Public Public Enterprises, Ministry of Industry, New Delhi, 1989-90 to 1993-94

E. Personnel Employed:

The personnel policies of the company is formulated by the Board of the company. The selection, promotion, transfer and pay roll of the key personnel of the company are done by Ministries on the recommendation of the Corporation and BPE. The total

manpower of the company was 6371 on 31st March 1994. Among them are 1418 at managerial and supervisory level, 898 are at clerical level, 2143 are skilled, 973 are semi-skilled, and 939 are unskilled workers.

5.1.2 Cost Accounting Practices in CCI:

This section of case study of the company is based on the information collected through questionnaire and discussion made with top executives. The interpretation is done in accordance with predetermined objectives of the study.

To show the output of a particular accounting period along with break-up of costs, CCI prepares cost sheet or statement of cost with its main elements being the prime cost, work cost and cost of production. The cost sheet data are collected from various statements of accounts which have been written in cost accounts either on day-to-day or on regular records. The cost sheet is prepared with certain periodicity e.g. monthly, quarterly, yearly.

Variable and fixed costs are usually defined in terms of how the total cost changes in relation to changes in activity of a chosen cost objective which, in turn, may be measured in units of product manufactured or sold. If a total cost remains unchanged for a given time period despite wide fluctuations in activity it is termed as fixed cost. But if a cost varies in direct

proportion to changes in the volume of output or turnover it is called the variable cost. CCI classifies the cost elements on the basis of fixed and variable cost and not on the basis of functional classification or direct and indirect or revenue and capital costs.

Functional classification is one of the basis for cost elements which is not used by CCI, leading to grouping of costs according to the broad divisions or functions of a business undertaking i.e. production, administration, selling and distribution.

Direct and indirect cost is a basis of cost classification based on the degree of identification of costs. If the cost can be identified with any cost centre, products or a group of product this is called direct cost. If it can't be traced in specific units of output or can't be identified with any cost centre, product or a group of products this represents indirect cost.

Capital and Revenue Costs is also based on the nature of the expenditures. If the costs incurred in purchasing assets either to earn income or increasing the earning capacity of the business, this is called capital cost. But if any expenditure is done in order to maintain the earning capacity of the concerned such as cost of maintaining an assets or running a business, it is revenue expenditure.

CCI is recording both financial and costing transactions in one integrated set of books. A single book-keeping system which

contains both financial and cost accounts is termed as integral accounting system.

It is revealed from the analysis that the company (CCI) considers absorption costing as a technique of costing where most of the fixed costs are allocated to cost units. But they don't use the marginal costing as a technique of costing which is based on classification of the costs into fixed and variable costs. In this approach variable costs are only related to cost units while fixed costs are attributed to the business in general.

In order to show the value of material consumed, CCI prepares material issue analysis sheet which is a periodic, analysis of various requisitions, material refund notes and material transfer notes.

ABC analysis is used in order to highlight the inventory control in CCI. But other techniques such as economic order quantity or Bin System are not applied in CCI. The overall objective of inventory control is to minimise the costs associated with the stock. ABC is based on items of stocks being sub-classified by itemizing total annual purchase cost needed and grouping in decreasing order of annual consumption cost. Particular aspects of receipts and issues of materials are shown on the bin card system which help the store keeper to control the stock also.

For treating the abnormal loss of material due to undesirable conditions such as theft, fire, careless handling etc., the company charges this abnormal loss to profit and loss account.

Estimated cost is used as the basis for overhead absorption which is calculated for each cost centre. Machine hours and prime cost are other basis being used for overhead absorption but CCI don't use any of them. Machine hour rate is the cost of running a machine per hour. This basis is used in those industries or departments where machinery is often being used and manual labour is small and so is the condition with CCI. The absorption of overhead on the basis of prime cost is calculated with the help of direct material, direct labour and budget overhead expenses.

The company consider its allocation of the indirect cost to various departments on the basis of direct allocation. Direct allocation is based directly on allocation of overhead to various departments on the basis of expenses for each department respectively. They don't follow techniques for allocations other than indirect cost like cost of direct material consumed or machine hours worked.

It is revealed from the analysis that the percentage on selling price of each unit is the criteria adopted by CCI for absorption of the selling and distribution overheads. The rate per unit basis and percentage on works cost are not used by CCI.

Selling overheads represent expenses incurred from the time the products are in saleable state till they are sold and delivered. Distribution overheads consist of all expenses incurred from the time product is completed in the factory till it reaches its destination.

Overtime wages system is used by the company to represent the work done beyond the normal work period. CCI treats by charging it to profit and loss account.

CCI is treating idle time by charging it to costing profit and loss account. This idle time is classified into normal and abnormal categories. Normal idle time is considered when the wastage time can't be avoided and abnormal when idle time can be avoided, provided that proper precautions are taken. Idle time in general, represents that time for which the employer pays, but from which he obtains no production.

To evaluate the labour productivity the company calculates it by comparing the total output with the total man hours. The company does not evaluate it by comparing added value of the product with the total man hours. The company also does not use the basis of comparing actual time with standard time. Labour productivity is the one where most of the work is done by hand labour. All factory labour, both direct and indirect should be included when we calculate labour productivity.

Average price method is used by CCI for pricing of input material and not the cost price of each lot or market price method. Average price method is based on the materials issued at the average cost of materials in store. But in case of cost price of each lot, the materials to be issued should be priced to produce at their purchase prices, and the material in the store are capable of being identified as belonging to specific lots. The company does not use the market price which expresses the replacement price or the realisable price.

CCI expresses its policy of pricing the main products by using full cost or absorption costing technique. The company does not use marginal costing technique which includes variable cost only. But as this company is wholly owned by the government the pricing policy is determined by the government only.

Standard costing is used in order to highlight the cost of production of the organisation. Standard costing is related to the respective production area. The deviation of the actual cost from standard cost is known as variance. This variance may be favourable or unfavourable. If the actual cost is less than the standard cost it is favourable and if it is the other way round, it is unfavourable. The company (CCI) is using variance analysis for control purpose and calculates variances for raw material, labour and overheads.

The setting of standards facilitates proper control, and informs the enterprise management about the expectations of the top management. The top management at its turn evaluates the performance of the enterprise on the basis of these standards. The standards of CCI are fixed on the basis of past average performance. The company does not use idealistic or experimental basis. Standard cost can be described as a pre-determined cost based on a technical estimate for materials, labour and overhead for selected period of time and for a prescribed set of working conditions.

In order to control the material, the CCI calculates the variances for the material prices cost, material quantity cost and material yield cost. The standards for raw material are set on mathematical basis. The company does not use past record or test run basis. The company fixes material price standards on the basis of current price and not by past average price or market price or expected price.

The variance analysis of labour is done regularly. Labour variances can be analysis by considering certain variances such as labour rate variance, idle time variance, labour time variance, labour mix variance. Out of these, the company uses labour mix variance. The labour mix variance as a part of efficiency variance shows to the management how much of the labour cost variance

is due to the change in the composition of labour force. Labour rate variance is that portion of labour cost variance which arises due to the difference between standard labour hours and actual labour hours. Idle time variance is that portion of labour cost variance which is due to the abnormal idle time of workers.

A number of criteria are used in setting the labour rate standards like normal operating conditions, union contracts, past experience etc. Among all these, the normal operating conditions is most commonly used by CCI to set labour rate standards.

In labour cost variances, the company takes into account the time and motion study to achieve standards for labour efficiency. The company does not use average performance records. In order to determine labour efficiency, the actual time is compared with the standard time. Time and motion study determines how much time is to be allowed for each operation involved. Time and motion study should be performed by the department of production engineering.

In order to calculate idle time variance, the company calculates normal and abnormal idle times of labour, and treats abnormal idle time of labour directly to the profit and loss account.

To determine under-or-over absorption of overheads, CCI calculates overhead variance for capacity variance, calender

variance and efficiency variance. Capacity variance is used to assist under-or over-utilisation of plant and equipment. This arises due to idle time, strikes and lock out etc. The efficiency variance reflects the efficiency of workers and plant.

Normally, through one of the following criteria we can set overhead rate standards, past records, future trend of prices and normal operating conditions. CCI uses only its past records and future trend of prices to set the overhead rate.

The analysis of variances will be complete only when the difference between the actual profit and standard profit is fully analysed. It is necessary to make an analysis of sales variances to have a complete analysis of profit variance because profit is the difference between sales and cost. CCI is calculating sales variances for sales volumes and sales price. The approximate period in which the company reviews various standards for incorporation is from 4-5 years and the periodicity of calculating variances is monthly.

In order to get accurate allocation of indirect costs (overheads) down to the unit level for determining product cost, the company (CCI) uses activity-based costing (A-B-C), which details out the activities and their costs. The number of levels of activities used depends on the requirements. A-B-C focuses on these activities as the fundamental cost objects. It uses the cost

of these activities as the basis for assigning costs to other cost objects such as products, services, or customers. Selection of ABC drivers depend on the number of activities. The most important reason of using ABC in CCI is for better understanding of overhead cost control and management of events and activities.

It appears from the analysis that the company considers budgetary control as a techniques for control system. Budgetary control system involves the establishment of quantitative targets, comparison of actuals with the targets and reporting the results of the comparison. Number of classification of budgets such as flexible budget, fixed budget, functional and master budget can be used but here in this case, the company uses flexible budget technique, which is designed to accommodate changes in accordance with the level of activity actually attained. The productivity of revising estimate in flexible budget is monthly.

When we talk about production cost three elements; material, labour and overheads have to be considered. In this case study, CCI prepares three types of budgets; material budget, labour budget, overhead budget. Material Budget is divided into two budgets. Material Requirement Budget which gives the information about quantity of material required during the budget period to attain the production targets. The other type of material budget is procurement budget which is about the material

to be acquired from the market during the budget period. Labour budget represents two types of information, one is about the different classes of labour and the other is labour recruitment budget which tells about the labour required after considering the number of workers in each department and the expected change in the labour force during the budget period due to the labour turnover. Overheads budget gives an idea of overhead expenses during the budget period.

CCI does not manufacture any joint product or by-product. Based on this the company does not use any basis for differentiating joint costs and by-product costs.

Case Study 2

5.2.1 Hindustan Paper Corporation Limited (HPC)

A. General Information:

Hindustan Paper Corporation (HPC) was incorporated as the one wholly owned by government of on May 29, 1970. The main objectives of HPC are manufacturing paper, paper boards, news print and kraft, distribution of these products on equitable and rational basis in the country. The corporation has taken up many projects such as Nagaland Pulps Paper Project, Nowgong Paper Project, Cachar Paper Project and Kerala News Print Project.

HPC has got five mills. Three of the mills are in the form of subsidiaries with independent Board of Directors. Two mills are in the form of units, directly under the control of HPC. All the five mills are in operation. These five mills are Hindustan Newsprint Limited (HNL) which was formed as a wholly owned subsidiary of the corporation with effect from 7th June, 1983 to take over the business of the newsprint mill in Kerala. Second, is the Nagaland Pulp Paper Company Limited (NPPC) which is a joint venture with government of Nagaland with capacity of 33,000 tonnes. Third, is the Mandya National Paper Mills Limited (MNPM). A sick mill in Karnataka was taken over by HPC in 1974. Fourth, is the Nawgaon Paper Mill (NPM) and the Fifth is Cachar Paper Mill (CPM) with the capacity of one lakh tonnes.

The authorised and paid up shares capital as on 31.3.1994 were Rs. 500 crores and Rs. 474.35 crores respectively. Total borrowing as on 31.3.1994 was Rs. 406.18 crores. The company did not raise any debentures/bonds/public deposits.

The head office of the HPC is located in Calcutta. The main product is writing and printing paper and the joint product is chlorin gas and the by-product is caustic soda. The basic type of technology being used in manufacturing is single stream process. Approximately annual turn over during 1993-94 to 1995-96 were Rs. 500 crores, Rs. 500 crores, and Rs. 400 crores in the

chronological order.

B. Production Performance:

The production function of the company is supervised by the General Manager (Plants). All the policies and goals and objectives are formulated by the Minister of Industry, Department of Heavy Industries. The production performance of HPC for the last several years is outlined in table 5.4.

Table 5.4

Production Performance of HPC

Year	HPC	HNL	NPPC	NPM	MNPM	CPM	Total
1987-88	N.A.	7480	603	6898	198	--	15999
1988-89	N.A.	7988	254	7050	1208	4573	21073
1989-90	N.A.	11282	141	10767	2305	7527	32022
1990-91	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	--
1991-92	21190	14808	473	Nil	2292	Nil	38763
1992-93	23231	16761	116	Nil	1535	Nil	41643
1993-94	25218	17972	Nil	Nil	Nil	Nil	43190

Source: Public Enterprises Survey, Department of Public Enterprises, Ministry of Industry, New Delhi, 1989-90 to 1993-94

The Table reveals that the consolidated performance of the various Mills of HPC has increased every year. The maximum

production is in 1993-94 and the minimum in 1987-88. The performance has increased by 170 percent in 1993-94 as compared to that in 1987-88.

C. Marketing Performance:

HPC being wholly owned by the government, the price of this company's products are determined by the government and distribution of products on equitable and rational basis in the country. The company performed the marketing function by different marketing wings of the HPC. The sales performance of the company over the period of time has been specified in table 5.5.

Table 5.5
Sales Performance of HPC

(Rs. in lakhs)		
Year	Net Sales	Percentage changes Over Previous Year
1987-88	5045	--
1988-89	9648	91.23
1989-90	16646	72.53
1990-91	N.A.	--
1991-92	25155	--
1992-93	31833	26.54
1993-94	13848	-56.5

Source : Public Enterprises Survey, Department of Public Enterprises, Ministry of Industry, New Delhi, 1989-90 to 1993-94.

The analysis of the table reveals that the net sales has increased from Rs. 5045 crore in 1987-88 to Rs. 31833 in 1992-93. The increase in sales revenue is due to the increased production in that year. It is 26.54 percent more than the sales of previous year. However, in 1993-94 the sales has decreased by 56.5 percent over the previous to that year.

D. Financial Performance:

The financial performance of the corporation is very much disappointing for a long period of time. It has not earned any profit during this period of time. The magnitude of losses is very high. Therefore, company has not paid dividend for many years and the net worth of the company is also negative for the last few years. The financial performance of the company is given in table 5.6.

The table-5.6 indicates that the net loss of the company is increasing in alarming proportions every year. It has increased by Rs. 20794 lakh in 1993-94 in comparison to 1987-88. It represents 534.55 percent increase of Net loss over the year 1987-88 and 380.80 percent over the previous year. Due to these losses the company could not declare any dividend. Such position needs rearrangement in the structure and control of the corporation and to review all the policies and strategies executed by the corporation.

Table 5.6**Financial Performance of HPC**

Year	Net Profit/Loss	Percentage changes over previous year	Dividend
1987-88	-3890	--	-0-
1988-89	-8624	+121.70	-0-
1989-90	-5581	+35.30	-0-
1990-91	N.A.	N.A.	-0-
1991-92	-6991	+N.A.	-0-
1992-93	-5134	+26.56	-0-
1993-94	-24684	+380.80	-0-

Source: Public Enterprises Survey, Department of Public Public Enterprises, Ministry of Industry, New Delhi, 1989-90 to 1993-94

E. Personnel Employed:

The total number of employees in HPC consist of 3688 on 31 March 1994. Out of them 946 are managerial and supervisory level, 338 are clerical, 1662 are skilled, 672 are unskilled, 50 are casual and daily wagers'. The key personnels of the company are promoted by the ministries at the recommendation of the corporation and BEP.

5.4.2 Cost Accounting Practices in HPC:

In order to get a comparative study of current costs with

the costs of the corresponding period, HPC prepares cost sheet with its main elements being prime cost, work cost, and cost of production. Cost sheet or statement of cost enables the management to fix up sales price of products and also provide a detailed information about costs per unit and a total cost of product manufactured during a particular period of time. Cost sheet is prepared with certain periodicity e.g. monthly, quarterly, yearly.

A number of basis are used for classification of cost elements like fixed and variable cost basis, revenue and capital basis, direct and indirect basis, functional basis. Among these basis HPC uses fixed and variable cost only. Fixed costs or period costs depend on time rather than on output and remains unaffected by variations in volume of output. Variable costs or product costs vary in direct proportion to the volume of output. Revenue and capital classification depends on the nature of expenditure. Capital costs represent the costs that are incurred in purchasing assets either to earn income or increasing the earning capacity of the business. Any expenditure done in order to maintain the earning capacity of the concern such as cost of maintaining an asset or running a business, it is revenue expenditure. The direct cost represents the expenses which can be allocated to cost units or cost centres but are apportioned or absorbed by cost centres or cost units. Indirect cost reflects

the expenses that cannot be allocated to cost units or cost centres but are apportioned or absorbed by cost units or cost centres. Functional classification leads to grouping the costs according to the broad divisions or functions of a business undertaking i.e. production, administration, selling and distribution.

HPC maintains cost books under integral or integrated cost accounting system which contains both financial and cost accounts in one integrated set of books.

The discussion reveals that the nature of costing technique applied in HPC is absorption costing. Through this technique, most of the fixed cost is considered as a part of production cost. The company HPC does not practice the marginal costing technique which assigns variable costs to products and segregates fixed cost from variable cost. The company also does not exercise activity-based-costing as technique of costing which focuses on activities as the fundamental cost objects. It uses the cost of these activities as the basis for assigning costs to other cost objects such as products, services, or customers.

In order to evaluate and record the material issues, returns and transfers, the company uses material issue analysis sheet to show at a glance the value of material consumed. HPC used ABC technique to control the firm's investment in stock. It is related

to production area. The company does not use other technique like economic order quantity system (EOQ) or card bin system. The inventory control system involves the recording and monitoring of various stock levels, forecasting future demands and deciding when and how much quantity to order. ABC analysis based on analysis of the material costs will show the cost significance of each item of material. The significance of this analysis is that a very close control is exercised over the items of 'A' group which accounts for foreign percentage of costs while less stringent control is adequate for category 'B' and very little control would suffice for category 'C' items. EOQ represents the quantity of material to be ordered at one time.

Abnormal losses arise due to inefficiency. Such losses are debited to the profit and loss account in HPC.

The company uses unit cost as a basis for absorbing overhead. HPC does not make use of machine hour basis, prime cost or direct labour cost basis. Absorption of overheads is a process by which overheads are included in the total cost of product. Machine hour rate is most appropriate in a mechanised cost centre, i.e. where production is mainly carried out mechanically. Prime cost basis combines the whole of direct materials cost as well as direct labour cost. Direct labour cost is beneficial in labour intensive cost centres and the workers are paid at the same rate

of wages.

In order to allocate the indirect cost to different departments, the company considers the cost of direct material consumed as a basis. The HPC does not use the direct allocation or machine hour worked. Cost allocation represents the allotment of whole cost to cost centres or cost units.

The company absorbs selling and distribution overheads on the basis of percentage of selling price of each unit. The company does not follow the percentage on work cost basis or estimated rate per unit. Selling expenses consist of those expenses which are incurred for the purpose of convincing a customer of the desirability of placing an order with the firm. Distribution expenses are expenses incurred in moving the goods from the company's godowns to the customer's premises.

In India, a worker working for more than nine hours a day or for more than 48 hours in a week get wages at double the hourly rate for the extra or over time put in by him HPC treats over time wages into profit and loss account.

Idle time is represented by time wasted either due to normal reasons or abnormal reasons. Idle time due to non-availability of raw material is treated to factory overhead accounts in HPC. The company does not charge the idle time to profit and loss account.

Measurement of labour productivity is essential to know the

efficiency of labour. HPC calculates labour productivity by comparing total output with the total man hours. The company does not use any other criteria like comparing added value for the product with total wage cost or by comparing actual time with standard time.

In order to price the products, HPC uses absorption costing technique and not the marginal costing one. In absorption costing all manufacturing expenses are charged to product costs. As this company is wholly owned by the government, the pricing policy is determined by the ministries which supervise it. But if at all the company wants to price the main products, it prefers full cost system.

For the purpose of differentiating joints product costs and by-product costs, HPC uses the relative sales value and target profit method.

The company expresses its procedure in treating idle time of labour in different ways. If the idle time is normal the company charges it to provision in costing account, but if it is abnormal, it is charged to profit and loss account.

The major operative part in standard costing is the comparison of actual costs periodically with the standard costs, working out the variances and tracing the variances to their root cause. The preconditions for working out variances are the

existence of standards and availability of actual costs. The comparison will give an overall measure of overspending or saving in costs. A variance which leads to an increase in profit is termed as favourable denoted by (F) or (Cr); that which results in lower profit will be adverse or unfavourable denoted by (A) or (Dr). In this case study the company HPC calculates the variances for the raw material, labour cost and overheads.

A number of criteria are used for setting standards for the company. Some of these criteria are experimental, idealistic, and past average performance. But here the company use experimental basis only. Standard cost is a pre-determined cost calculated in relation to a prescribed set of working conditions, correlating technical specifications and scientific measurements of materials and labour to the price and wage rates expected to apply during the production period.

HPC calculates the material variances for the material yield variance. The standards for raw material are set on the basis of test run and not by scientific computation or past record. The company does not calculate variances for material price or material quantity. Material yield variances is that portion of direct materials usage variance which is due to the difference in the standard yield specified and the actual yield obtained.

Various types of analysis relating to labour variance, like labour rate variance, idle time variance and labour mix variance,

are specified. But here in this case study HPC calculates labour variances through labour mix variances. Labour mix variance shows to the management how much of the labour cost variance is due to the change in the composition of labour force. Labour rate variance is that portion of labour cost variance which arises due to the difference between standard labour hours and actual labour hours. Idle time variance is due to the abnormal idle time of workers. Union contracts is the basis used for setting labour rate standards. The company does not use past experience and normal operating conditions.

To set the standards of labour efficiency the company takes help from past performance records. Labour efficiency reflects the difference in the time taken and the standard.

For calculating overheads variance the company considers efficiency variance. It does not take into account capacity variance. Efficiency variance is related to the efficiency of workers and plant. Capacity variance is related to the under-and over-utilisation of plant and equipments and arises due to idle time, strike and lock out etc.

In order to set standards for overhead rate, the company considers normal operating conditions and not the past records or future trend of prices. The company also calculates sales variance for sales volume. The variances are calculated

monthly. The standards for incorporated changes are reviewed annually.

A budget could be seen as a statement of expected income and expense under certain anticipated operating conditions. HPC uses budgeting control technique for purpose of control. The company prepares different types of budgets such as material budget, labour budget and overhead budget.

Material budget for determination of material cost involves quantities to be used and the rate per unit. The labour cost budget can be drawn up only when the time required to do one unit of work and the wages to be paid for it, are known. A classification of the overheads into fixed overheads, and variable overheads makes the overhead budget preparation easy.

HPC prepares its budgets on the basis of flexible budget by recognising the difference in behaviours between fixed and variable costs. The company does not prepare its budgets on the basis of fixed budgets, which are designed to remain unchanged irrespective of the volume of output or turnover obtained. The periodicity of revising estimate in flexible budget is monthly.

Case Study 3

Continental Paper Ltd.

A. General Information:

Continental Paper Ltd. is one of the company engaged in paper industry operating under the private sector in India. It was established in 1981 under the Companies Act 1956. It is located in Delhi and its Registered Office is also in Delhi. It has one plant in Karvand, Shirpur Taluka Distt. in Maharashtra. The main objective of this company is to manufacture bleached varieties of writing and printing paper from 44HSM to 120 GSM and unbleached varieties kraft from 60 GSM to 180 GSM.

The approximate turnover were Rs. 1468.75 lakhs in 1993-94, 2009.96 lakhs in 1994-95 and Rs. 2319.86 Ikahs in 1995-96. The authorised capital and paid up capital is Rs. 10 crores.

B. Production Performance:

The production policy of the company is formulated by the board of directors and executed by the production manager. The production target is formulated keeping in view the demand of its products. The installed capacity of the plant is 10,000 metric tonnes. The production performance of the company for a few years has been outlined in table 5.7

Table 5.7**Production Performance of CPL**

(000 MT)			
Year	Installed Capacity	Actual Production	Capacity Utilization
1992-93	10,000	8188.18	81.88
1993-94	10,000	9494.17	94.94
1994-95	10,000	11615.65	116.15
1995-96	10,000	11390.00	113.9

Source: CPL Annual Reports 1992-93 to 1995-96 and Kothari's Industrial Directory of India.

The Table reveals that the enterprise has increased its production every year. It was highest in the year 1994-95. In this year also the high capacity utilisation is also high. This year also saw the production going up by 1.16 percent of the installed capacity. The least production was in the year 1992-93. It also saw the minimum capacity utilisation. The achievement of production viz-z-viz the installed capacity is also satisfactory.

C. Marketing Performance:

The marketing function of the company is performed by its whole time director. He formulates marketing strategies for the company after considering goals and objectives set by board and

take necessary steps for its execution. The sales performance of the company is specified in table 5.8.

Table 5.8
Sales Performance of CPL

(Rs. in lakhs)		
Year	Net Sales	Percentage changes Over Previous Year
1990-91	1358.77	--
1991-92	945.22	-30.43
1992-93	1207.51	27.75
1993-94	1446.19	19.77
1994-95	1973.23	36.44
1995-96	2291.6	16.13

Source: Annual Reports 1993-94 to 1995-96 and Kothari's Industrial Directory of India.

The table shows that the sales performance of the company is satisfactory throughout except in 1991-92, when the sales performance decreased by 30.43 percent over its previous year. The performance of 1994-95 as compared to its previous year is the highest which is 30.09 percent. But on the basis of year 1990-91, the highest amount of sales was realised in the year 1995-96, which is 68.6 percent over the base year. From the

analysis it is clear that there is an increasing trend of sales during the period and the amount is also significant.

D. Financial Performance:

The authorised and paid up capital of the company is Rs. 10 crores. The turnover is Rs. 23.19 crores. The amount of investment in 1995-96 was Rs. 2,50,000. The financial performance of the company has been outlined in table 5.9.

Table 5.9

Financial Performance of CPL

Year	Net Profit/Loss	Percentage changes over previous year
1990-91	42.45	--
1991-92	-6.94	-116.34
1992-93	-98.79	+1324.92
1993-94	-5.98	+106.04
1994-95	31.38	424.74
1995-96	141.19	349.93

Source: CPL Annual Reports 1990-91 to 1995-96 and Kothari's Industrial Directory of India.

The table indicates that the company has earned Net Profit every year except 991-92 and 1992-93, when it earned Net loss. But the fluctuation is not uniform. This is due to frequent change

of price of paper products both in domestic and international market. The net profit is the highest in the year 1995-96.

Personnel Employed:

The personnel policies of the company are formulated by the Board of the company. The selection, promotion, transfer and pay roll of the key personnels of the company is done by the board. The company provide financial incentives to the workers for better performance. The labour productivity of CPL is also satisfactory².

5.3.2 Cost Accounting Practices in CPL:

CPL describes facts about the cost of products by applying cost sheet as a technique. Cost sheet is a statement drawn to give the detailed information about the cost of product. Cost sheet includes many elements. Among these the main elements are prime cost, work cost and cost of production. The time of preparation of cost sheet depends on the policy of the company. To get data about the production cost, it is prepared monthly, or quarterly yearly.

The main principle that underlines the cost classification of main element of the cost is functional classification. CPL does not arrange cost on the basis of direct and indirect Cost Revenue and Capital Cost or Fixed and variable cost. Functional

classification used by CPL is based on grouping the costs according to the broad divisions of functions of a business undertaking i.e. production, administration, selling and distribution.

The analysis reveals that CPL practices integrated cost accounting system as a system for recording the cost and financial transactions in one set of books.

CPL uses absorption costing technique, in which manufacturing expenses are sought to be assigned and recovered directly from the items produced. But the company does not use marginal costing or activity-based costing techniques. Marginal costing technique that relates to the change in output in the particular circumstances under consideration, must examine the additional costs incurred in increasing production of a given quality of a block of units. Activity based costing focuses on activities as the fundamental cost objects.

In order to ensure the value of material consumed, CPL use material issue analysis sheet or material abstract which relates to material issues, returns, transfers through periodical analysis of various notes related to materials. Inventory is the part of current asset. Inventory control is essential for business success. For the purpose of inventory control, CPL uses economic order quantity. The company does not use ABC analysis or two Bin Card system.

EOQ represents the most favourable quantity or the optimum quantity of materials which can ideally be purchased each time most economically. In ABC analysis, items of stocks are sub classified by itemizing total annual purchase cost of each item needed and grouping them in decreasing order of annual consumption cost.

In order to treat the abnormal loss which arises due to abnormal reasons like theft, fire careless handling etc., CPL charges it to production cost account.

The company does not manufacture any joint products or by-product. For this reason the company does not follow any method for differentiating joint costs and by-product. Also CPL does not determine idle time of labour.

The objective of overhead absorption process is to include in total cost of a product, an appropriate share of a firm's total overheads. Various basis to absorb overheads have been developed. These basis are; machine hour basis, unit cost basis, prime cost basis and direct labour basis. CPL is using machine hour as a basis for overhead absorption. Machine hour rate is the cost of running a machine per hour. The CPL does not use the direct allocation or machine hour worked. Direct allocation means that overheads are directly allocated to various departments on the basis of expenses for each department

respectively.

The analysis reveals that various methods are used for the absorption of selling and distribution overheads. These basis are rate per unit, percentage on works cost, percentage on selling price of each unit. Selling overhead is comprised of all expenses incurred from the time the products are in salable state they are sold and delivered. Distribution overhead comprise all expenses incurred from the time the product is in finished form in the factory till it reaches its destination.

Overtime which represents the work done beyond the normal work period, is maintained in profit and loss account. The company does not charge it to factory overhead accounts.

Idle time is that which represents the time for which the employer pays but obtains no production. This idle time may be normal or abnormal. The idle time arising due to non-availability of raw material is charged to profit and loss account and not to factory overhead accounts. If the wastage time cannot be avoided it is normal but what can be avoided is abnormal idle time.

By comparing total output with the total man hours, the company calculate labour productivity. Labour productivity is applicable where most of the work is done by hand labour. CPL does not use any other certain such as comparing actual time with the standard time or comparing added value of the product with

total wage cost for calculating labour productivity.

CPL is a company belonging to private sector, and so its pricing policy is formulated by the board. In pricing input material the company follows the method of cost price of each lot. CPL exercises neither the average price method nor market price method. Cost price of each lot is based on pricing the materials issued to production at their purchase prices and material in the store is capable of being identified as belonging to specific lots.

For pricing the main products, CPL uses absorption costing technique and not the marginal costing technique. Also in order to price the finished products, the company takes into account the fixed and variable cost and administrative overheads but not the selling overheads.

Standards costing is a system which seeks to control the cost of each unit or batch determination before hand of what should be the cost and then its comparison with actual costs. Standard costs may be defined as predetermined or budgeted cost of a unit of a product or a job. The deviation of actual cost from standard cost is known as variance. Variance may be favourable or unfavourable. The company CPL calculate the variances for the raw material, labour cost and overheads.

In order to achieve the standards, the CPL fixes standards on past average performance basis. Standard cost is a

predetermined calculation of how much costs should be, under specified working conditions. The success of standard costing depends upon the establishment of correct standards. The standards are established for each element of cost.

CPL calculates variances for the material price, material quantity and material yield. The company bases on past record for setting standards for various variances of materials. The company does not use scientific computation or test run for the purpose.

Labour variances are represented as labour rate variance, idle time variance, labour mix variance, labour efficiency variance, labour cost variance. But CPL calculates variances for labour rate variance and idle time variance. Labour rate variance which arises due to the difference between the standard rate specified and actual rate paid. Idle time variance arises due to abnormal idle time of workers. Labour mix variance shows to the management as to how heavily the labour cost variance is dependant on the change in the composition of labour force.

The setting of standards of labour rate may be on union contracts. The company does not use normal operating conditions or past experience or estimate rate.

The difference between standard labour hours specified for output and actual labour hours spent is called labour efficiency

variance. To achieve the standards of labour efficiency the company considers average past performance records. It does not use time and motion study which determines the time to be allowed for each operation involved.

Overhead cost variance is the difference between the standard cost of overhead allowed for actual output and the actual overhead cost incurred. The company calculates various types of overhead variances like capacity variances and efficiency variances. Capacity variances arises due to working of higher or lower capacity than the standard capacity. Efficiency variances arises due to difference between budgeted efficiency of production and actual efficiency achieved.

The company fixes the overhead rate standard on past records basis. The company does not use future trend of prices or normal operating conditions.

Sales variances show the effect on profits. CPL calculates sales variances for sales volume, sales mix and sales price. CPL calculates variances yearly and the approximate periodicity for revising various standards is also annual.

Budgetary control is a widely used tool for evaluation of performance of all the functional areas of the enterprise. It is the most significant technique of management control. The company CPL prepares budgetary control and the production budget which

includes material budget, labour budget and overhead budget. Material budget shows the quantity of material required and the quantity of material to be acquired from the market during the budget period. Labour budget tells about the number of units to be produced according to the production budget. It is based on labour rates, pay roll methods and pay roll duties. Overhead budget is segregated into fixed and variable expenses, controllable and uncontrollable expenses, so that the supervisor is held accountable for only those expenses over which he has control. Flexible budget tends to change in accordance with the level of activity. Fixed or static budget is drawn up for a single predicted activity level. The company uses flexible budget for drawing its budgets. The periodicity of revising estimate in flexible budget is quarterly.

Case Study 4

5.4.1 Hindustan Fertilizer Corporation Limited (HFC):

A. General Information:

Hindustan Fertilizer Corporation (HFC) was established on 14th March, 1978 under the Companies Act, 1956, consequent upon the decision of the Government of India to re-organise the

Fertilizer Corporation of India Limited and National Fertilizer Limited. It has three production units at Namrup, Durgapur and Barauni. The Haldia Project has not yet been commissioned. The corporation has five operational plants which are continuing production. The main product is urea. The registered office of the company is located in Delhi. The marketing function is performed by its corporate office with the help of various marketing divisions located in different states of India. The offices are Eastern Marketing Zone, Fertilizer Promotion and Agriculture Research Centre, Purchase and Liason office at Calcutta and Agronomy Wing at Sinduri.

The authorised capital of the corporation as on 31st March 1994 was Rs. 750 crore and the paid up capital was Rs. 686.02 crore. The total net fixed assets were Rs. 963.14 crore. The corporation has been declared as sick by BIFR and revival packages were submitted to the government as desired by BIFR. The approximate turn over of last three years were 139,45 crores in 1993-94, 122,98 crores in 1994-95 and 205,22 crores in 1995-96.

B. Production Performance:

The production function of the company is performed by the GM (Plants). He executes policies and strategies set by the corporate office. On the basis of this broad plans and policies,

he formulates strategies and policies for the plant. He is responsible to the board for effective performance of the plant. The production performance of HFC for the last several years is given in table 5.10.

Table 5.10

Production Performance of HFC

(In 000' MT)

Year	Actual Production (000 MT)	% of Capacity Utilization
1987-88	275	40.36
1988-89	240	37.31
1989-90	237	37.16
1990-91	208	32.36
1991-92	210	33.15
1992-93	219	34.71
1993-94	116.4	18.38
1994-95	106	16.11
1995-96	125.53	19.21

Source: Annual Report of HFC from 1987-88 to 1995-96 and Public Enterprises Survey 1989-90 to 1993-94.

The table reveals that the capacity utilisation of HFC is disheartening. Though the capacity utilisation of these plants is gradually improving but the trend is not upto the mark. The under utilisation of capacity is one of the main causes of poor

performance of the company. The maximum capacity utilisation is in the year 1987-88 and the minimum is in the year 1994-95. It is reported that the reasons behind the poor capacity utilisation are power interruptions, break down of machinery and equipment in different units, shortage of raw material, industrial unrest and extension of annual turn over.³

C. Marketing performance:

India has to import huge amount of fertilizer particularly urea to meet its growing domestic demand. The price of this product is determined by the government, and distribution and promotional functions of the company are performed by different marketing wings of the HFC. The sales performance of the company over the period of time has been specified in table 5.11.

The analysis of the table-5.11 reveals that the net sales has increased from Rs. 196.30 crore in 1987-88 to Rs. 318.33 crore in 1992-93. The increase in sales revenue is due to increased production in that year. It is 26.55 percent more than the sales of previous year. However, in 1993-94 the sales has decreased by 56.19 percent over the previous year. This is due to lower production of urea in this period. The increment in sales revenue in 1992-93 is the result of better production as well as comparative reduction of Marketing cost of its products.

Table 5.11**Sales Performance of HFC****(Rs. in crore)**

Year	Net Sales	Percentage change Over Previous Year
1987-88	196.30	--
1988-89	237.52	21.0
1989-90	201.60	-17.82
1990-91	211.88	5.10
1991-92	251.55	18.72
1992-93	318.33	26.55
1993-94	139.45	-56.19
1994-95	88.5	-36.53
1995-96	132.3	49.50

Source: Annual Reports 1993-94 of HFC and Public Enterprise Survey 1989-90 to 1993-94 and Kothari's Industrial Directory of India.

D. Financial Performance:

The financial performance of the corporation is very much disappointing for a long period of time. It has not earned any profit since its inception. Moreover, magnitude of losses are also very high. The company has not paid any dividend and the net worth of the company is also negative for the last five years. The

financial performance of the company is given in table 5.12.

Table 5.12

Financial Performance of HFC

(Rs. in crore)

Year	Net Profit/Loss	Percentage change over previous year
1987-88	-104.84	--
1988-89	-156.38	+51.54
1989-90	-169.79	+13.41
1990-91	-231.45	+61.66
1991-92	-330.53	+99.08
1992-93	-349.45	+18.92
1993-94	-366.73	+20.49
1994-95	-412.06	+12.36
1995-96	485.22	217.75

Source: Annual Reports 1993-94 of HFC and Public Enterprise Survey, Department of Public Enterprises, Ministry of Industry, New Delhi 1989-90 to 1993-94 and Kothari's Industrial Directory of India, Madras, 1996.

The table indicates that the net loss of the company is increasing alarmingly in every year. It has increased by Rs. 380.38 crore in 1995-96 as compared to that in 1987-88. It represents 362.80 percent increase of Net loss over the year

1987-88 and 49.49 percent over the previous year. Due to these net losses in every year the company could not declare any dividend. This trend is not at all desired for a company. Such position necessitates the need to rearrange the structure and control of the organisation. The only exception is in 1995-96 when the company got profit of Rs. 485.22 crores.

E. Personnel Employed:

The total number of employees in HFC consists of 9401 as on 31st March 1994. Out of them 2127 are at managerial and supervisory level, 1458 are staffs, 3464 are skilled, 1318 are semi-skilled and the rest 1034 are unskilled workers. This number represents 20.99 percent of the total number of employees involved in the fertilizer enterprises operating under public sector. The key personnels of the company are appointed and promoted by the ministries at the recommendation of the corporation and BPE.

5.2.2 Cost Accounting Practices in HFC:

It appears from the analysis that HFC adopted cost sheet to get more detailed information about the cost of product. Cost sheets are statements setting out the cost of product giving detail for all main elements of cost. The main features noted in cost sheet are prime cost, work cost and cost of production. The cost sheet is prepared for a particular period of time i.e. monthly,

quarterly, yearly.

Two types of cost classifications are practiced in this company. These are based on fixed and variable as well as revenue and capital. The company does not practice other basis like direct and indirect cost, or functional classification. Fixed costs or period costs remain fixed and the changes in volume of output depends on time rather than output. Variable or product costs depend on the volume of output rather than on time and vary in direct proportion to the volume of output. The other basis used by HFC is revenue and capital which depends on the nature of expenditure and its relation with the earning capacity of the concern. Capital costs represent the costs which are incurred in purchasing assets either to earn income or increasing the earning capacity of the business. Any expense done in order to maintain the earning capacity of the concern such as cost of maintaining an assets or running a business is revenue expenditure.

The data supports that there is no separate set of books for costing and financial recording purposes.

HFC uses the absorption costing technique, where all manufacturing expenses are charged to product costs. The company neither uses marginal costing technique nor activity based costing system. The marginal costs are a measure of variable product costs.

Activity based costing which establishes the links between performing a particular activity and the demands of those activities made on the organization resources.

Material issue analysis sheet is used for giving classifications of the material movement including material issues, returns and transfer. This statement is based on periodical analysis of various requisitions, material returne notes and material transfer notes. Through this statement the value of material consumed is known.

In order to maintain optimum level of inventory of raw materials, finished products and other supplies, and to ensure smooth flow of operation, HFC uses ABC analysis and card bin system. But the company does not use EOQ (economic order quantity) system. The main objectives of inventory control is to reduce the costs related with stock. ABC is one of the inventory control technique which enables management in placing the effort where more fruitful results are expected. Details of receipts and issues of material are shown on the bin card also to assist the store-keeper to control the stock. EOQ which is not used by HFC represents the quantity of material to be ordered at one time.

If the materials are lost due to theft, fire damage or careless handling it would be treated as abnormal loss. HFC charges this abnormal loss of material to profit and loss account.

Various methods are used in absorbing overheads like unit cost, machine hour, prime cost, labour cost etc. HFC uses unit cost basis for overhead absorption. It is the allotment of overhead to cost units by the use of one or a combination of overhead recovery. This method seeks to determine the expenses incurred when a machine is run for one hour and then determines the amount on the basis of the number of hours worked by the machine.

The allocation of indirect cost to various departments, is based on the cost of direct material consumed. The company does not follow the direct allocation or machine hour worked. Cost allocation is the allotment of whole item of cost to cost centres or cost units.

A number of rates are used for absorption of selling and distribution overheads like rate per unit, percentage on work, cost and percentage on selling price of each unit. HFC emphasises on rate per unit as a basis for absorption of selling and distribution overheads. Selling overheads comprise expenses which aim at making the customer's or prospective customers able to place orders and the distribution expenses comprise the expenses which are meant for supplying goods against the orders.

Overtime represent the work done beyond the normal work

period. HFC charges overtime wages to profit and loss account and sometimes to factory overhead according to the purpose of overtime wages.

Idle time represents the time wasted. It may be normal or abnormal. In case of abnormal idle time which is caused due to failure of power or non-supply of materials, its wage is charged to profit and loss account in HFC. The company does not charge this to factory overhead accounts.

To know the efficiency of labour, measurement of labour productivity is essential. The data supports that the company stresses on comparing the value added to the product with total wage cost as a measure of labour productivity. The company does not use any other criteria like comparing actual time with standard time for measurement of labour productivity. All factory labour, both direct and indirect are included in measuring labour productivity.

Number of techniques are used in pricing input materials. These techniques are cost of each lot, average price and market price. HFC follows the cost price of each lot for pricing input materials. This method is based on the assumption that the material in the store are identified as belonging to specific lots for costing purpose. Average price method is issued for the materials in stores at the average cost of materials. Market price is either

the replacement price or the realisable price.

HFC adopts the policy of pricing the main product on full cost or absorption costing technique. But as this company is owned by government, the pricing policy of main product is determined by the government. In pricing products, the cost components like fixed costs and variable costs are considered as the main components of cost by the government. Other components like selling and administrative overheads are not considered.

The control of cost is as important as the ascertainment of cost. Standard costing is the system by which cost is predetermined on the basis of normal levels of activities and efficiency. The divergence between any planned result measured in money and the actual cost is called variance. Ascertaining the contribution of each factor to the overall variances is termed as variance analysis. The company uses variances analysis and calculates this for the raw material, labour cost and overheads.

Standards are be fixed on past average performance basis in this company and it does not establish the standards on idealistic or experimental basis. A general rule is that the standards should be attainable and fair. The various standards are reviewed yearly.

In case of material the company calculates material price variance, material usage variance and material yield variance. The standards for raw materials are fixed on past record basis.

The HFC does not use any scientific computation or test run as a basis in fixation of the standards.

The variances in case of labour are the labour rate variance, idle time variance and, labour mix variance. The company uses labour rate variance which shows as to what extent the actual payment has deviated from the standard because of the change in the rate of pay.

Idle time variance shows the loss in labour hour worked and its costing is done on standard rate. Labour mix variance explains to the management the variance in labour cost due to the change in the composition of labour force. Standards for labour may be fixed on union contracts. The company does not use other basis like past experience or normal operating conditions for fixation of labour rate.

Standards for labour efficiency are fixed on time and motion study in HFC and it does not use average past performance in its fixation. Labour efficiency variance shows the extent to which the actual efficiency deviates from the standard due to change in the productivity of workers. Time and motion study shows that the how much time is allowed for each operation involved.

In case of overheads, the following are the usual variances; expenditure variance, efficiency variance and capacity variance. Capacity variance shows the under-or over-utilisation of plant and

equipment and arises due to idle time. Efficiency variance is related to the efficiency of workers and plant. The company fixes overhead standard on the basis of future trend of prices and does not take into account the past records or normal operating condition.

In case of sales also there are three variances: sales volume variance, sales price variance and sales mix variance. All of these variances are considered and practiced in HFC. The variances are calculated every quarter of the year.

Budgetary control means laying down in monetary and quantitative terms what exactly has to be done and how it has to be done over a coming period and then to ensure that actual results do not deviate much from the planned course. HFC is using budgetary control as an instrument of decision making. The budgetary control is considered to be the most significant and widely used device for management control in the company. It is used in most of the functional areas of the enterprise. The company prepares production budget which consist of raw material budget, labour budget, overhead budget. Material budget is drawn up after costing the quantities required for achieving the production target. Time and motion study helps in finding out the time needed for each type of workers to make a product. This enables the labour budget to be drawn up. The overhead budget shows the expenses other than material and labour required to be

incurred and these expenses are split into fixed and variable portions. The total of all these budgets will show the total amount to be spent on production.

The budget may be drawn up on flexible or fixed basis. Flexible or variable budget is designed to change with respect to the level of activity attained. Unlike a flexible budget, a fixed budget is one which is designed to remain unchanged, irrespective of the level of activity actually attained. The company here, practises the flexible budget and the period of revising the estimate is monthly.

The company does not use any basis for differentiating joint costs or by-product cost, because the company does not produce any joint products or by-products. HFC does not determine idle time for labour also.

Case Study 5

VAM Organic Chemicals Ltd

The company was incorporated in 1978 under the Companies Act, 1956. The registered office of the company is located in Bharatiagram Gajaula, Moradabad, Uttar Pradesh. The head office is located in Delhi. This is a private sector company. The main product of VAM is single super phosphate and the joint

product is sulphuric acid. The company has one plant in Moradabad, U.P. The company has been promoted by AB Bofors of Sweden and Hindustan Wires Limited. The company is engaged in manufacturing and marketing of Vinyl Acetate Monomer (VAM), intermediates of VAM, polyvinyl acetate by Pyridin and picoline, and poly-Vinyl Alcohol. The company also manufactures a range of adhesives under the brand VAM (Vamicol) and also construction chemicals. The company commands 21.4 percent of adhesives market and is second only to Pidilite Industries. As far as VAM is concerned. The company is the market leader with an estimated 53 percent share. The company plans to expand its R&D activities in the field of speciality chemicals, and polymers formation technology.

The authorised capital of the company on 31st March, 1996 was Rs. 1500 lakhs and paid up capital was Rs. 541.91 lakhs. The net current assets were Rs. 22,136.68 lakh. The BIFR has recommended the merger of Ram Ganga Fertiliser with VAM. And, to boost its activities the company plans to operate storage and handling facilities of bulk cargo at Kandla and setting up of a captive power generation plant. The turnover of last three years (1993-94 to 1995-96) were Rs. 2936, Rs. 3158, Rs. 32320 lakhs in the chronological order.

Production Performance:

VAM commands 21.4 percent of adhesives market and is second only to piditite industries. VAM is the market leader with an estimated 53 percent share. Most of VAM products are used as feed stock for manufacturing vamicol. Pyridine and picoline are used in the manufacture of pesticides and pharmaceuticals. The production performance of the last few years of single super phosphate is outlined in table 5.13.

Table 5.13
Production Performance for Single Super
Phosphate of VAM

(000 MT)			
Year	Target Production	Actual Production	Percentage
1993-94	93190	46590 MT	50%
1994-95	93090	93079 MT	100%
1995-96	86000	98444 MT	114%

Source: Annual Report of VAM 1993-94 to 1995-96.

This table indicates the target achievement of single super phosphate plant during 1994-95 as compared to 1993-94 by showing a healthy sign by growth of almost 100% over the previous year . In 1995-96 the capital division of this company

achieved a production of 98444 MT as compared to the budgeted production of 86000 MT which constitutes 114% of target realisation.

C. Marketing Performance:

The marketing function of the company is performed by its marketing divisions located in different states of India. The fertiliser industries in India is fortunate in having a large domestic market with better realisation and the company has increased its sales in the domestic market. The sales performance of the company is outlined in table 5.14.

Table 5.14

Sales Performance of VAM

(Rs in crores)		
Year	Net Sales	Percentage change over previous year.
1990-91	92.39	--
1991-92	123.56	33.73
1992-93	153.05	23.86
1993-94	173.82	13.57
1994-95	216.98	24.83
1995-96	268.17	23.60

Source: Kothari's Industrial Directory of India 1994 and
Annual Report of VAM 1994-95 to 1995-96.

The table 5.14 shows that the sales performance of the company is satisfactory, as it shows a continuous growth over the years. The performance of 1991-92 over its previous year was the highest which is 33.73 percent. But on the basis of the year 1990-91, the highest amount of sales was realised in the year 1995-96, which was 190.25 percent of the base year sales.

D. Financial Performance:

The authorised capital of the company is Rs. 1500 lakhs, the paid up capital is Rs. 541.91 lakhs in 1996 and the turnover is Rs. 32320 lakhs. Most of its profits are generated from domestic sales. It also declared dividend every year. The debit/equity ratio of VAM were 1.00, 0.84, and 0.70 in 1991, 1992, 1993 respectively. The financial performance of this company has been outlined in table 5.15.

The analysis from this table-5.15 indicates that the financial performance of the company in terms of net profit is satisfactory. The net profit based on the base year was the lowest in 1994-95 and was 4.38, which is 47.10 percent lower than the previous year. The commendable performance was recorded in 1995-96. In that year the Net Profit was 202.44 percent more than that of the year 1990-91 and was also 408.90 percent more than the previous year.

Table 5.15**Financial Performance of VAM****(Rs in crores)**

Year	Net Profit/ Loss	Percentage change in Net Profit/Loss over previous year.
1990-91	7.37	--
1991-92	6.36	-13.70
1992-93	10.34	62.58
1993-94	8.28	-19.92
1994-95	4.38	-47.10
1995-96	22.29	408.90

Source: Annual Reports of VAM and Kothari Industrial
Directory of India, 1996.

F. Personnel Employed:

The personnel policies of the company are formulated by the board of the company. The selection, promotion, transfer and pay roll of the key personnels of the company are done by the board. The company manpower includes officials, staffs, skilled, semi-skilled and unskilled workers. The company provides financial incentives to the workers for better performance.

Cost Accounting Practices in VAM:

The VAM ascertains the cost by preparing cost sheet, with

prime cost, works cost, factory cost and cost of production as its elements. Cost sheet is designed to show the output of a particular accounting period along with break-up of costs. The data incorporated in cost sheet are collected from various statements of accounts which have been written in cost accounts on either day to day or regular basis. The cost sheet is prepared for a particular period e.g. monthly, quarterly.

They classify the cost elements on fixed and variable, direct and indirect basis. But they do not classify on revenue and capital or on functional basis. Fixed and variable basis depend on the changes in activity or volume. Fixed costs are those costs which depend on the time rather than on output and remain fixed with increase or decrease in the volume of output. Variable or product costs are those which vary in direct proportion to the volume of output and this cost depends on the quantum of output rather than on time. Functional classification, which is not used by the company, divides the costs in the light of the different aspects of basic managerial activities involved in the operation of a business undertaking, like production, administration, selling and distribution etc. Capital costs represent the costs incurred in purchasing assets either to earn income or increasing the earning capacity of the business. Any expenditure done in order to maintain the earning capacity of the concern, such as cost of maintaining an asset or running a business, is revenue

expenditure.

It keeps the books under integrated cost account system which records financial and costing transactions in one self contained ledger.

VAM uses absorption costing where most of the fixed cost are treated as a part of production cost and inventory values are arrived at accordingly. But they do not use marginal costing or activity based costing techniques. In marginal costing technique variable (direct) cost are assigned to products and matched with revenue when revenue from the related products are recognised. Activity-based costing as a technique of costing reveals the links between performing particular activities and the demands those activities make on the organisation resources.

For the purpose of inventory control, VAM uses ABC analysis. But it does not use Economic Order Quantity (EOQ) system or two bin card system. The overall objective of inventory, control is to minimise the costs associated with stock. ABC is one of the technique used by this company. To control inventory the items of stocks are classified according to total annual purchase cost of each time and grouping, them in decreasing order of annual consumption cost. Details of receipts and issues of materials are shown on the two bin card system as to assist the store keeper in controlling the stock. EOQ which is not used in

this company represents the most favourable quantity or the optimum quantity of materials which can ideally be purchased each time to economise cost.

The abnormal loss of material is treated in the VAM company accounts to the cost of production. Abnormal loss of material arises due to abnormal reasons like theft, fire, careless handling etc.

The VAM company absorbs the factory overhead on the basis of the unit cost and not on the basis of machine hour, prime cost or labour cost. Absorption is charging overheads to cost units by means of rates separately calculated for each cost centre. Machine hour rate is the cost of running a machine per hour. It is used in those industries or departments where machinery is a predominant part of production and there is little manual labour. Prime cost as one of the basis of absorption of factory overhead depends on two factors; budgeted overhead expenses and aggregate of direct material and direct labour costs of products.

Allocation of the indirect cost to various departments is on the basis of direct allocation and machine hour worked in VAM company. They don't follow cost of direct material consumed.

VAM do not use material issue analysis sheet to record the material issue, returns and transfers. Selling and distribution overheads are absorbed on the basis of the rate per unit and not

by percent of work cost or percentage on selling price of each unit. Selling overhead represents expenses incurred from the time the products are in saleable state until they are sold and delivered. Distribution overhead consists of all expenses incurred from the time product is completed in the factory until it reaches its destination.

The company charges overtime wages to profit and loss account. They do not charge them to factory overhead accounts.

The idle time arising due to non-availability of raw material is charged to profit and loss account and not to factory overhead accounts. Idle time is that time for which the employer pays but from which he obtains no production. This idle time may be normal or abnormal. Normal idle time, represents that time for which the wastage cannot be avoided, whereas abnormal idle time is that time for which the wastage can be avoided if proper precautions are taken.

Where most of the work is done by hand labour, measurement of labour productivity is essential to know the efficiency of labour. In this case study, the company calculates the labour productivity by comparing total output with the total man hours. They do not measure it by comparing added value for the product with total wage cost or by comparing actual time with standard time. While calculating labour productivity, the entire

factory labour, both direct and indirect, are included.

In pricing input material, the VAM company follows the average price method. They use neither the market price method nor the cost price of each lot. They use the absorption costing technique in pricing the main products and not the marginal costing technique. In this technique, fixed and variable costs are included. In setting the price of finished product, the company takes into account the fixed and variable costs and selling overheads. The company does not consider the other components of cost like administrative overheads.

Control is very important function of management. Through control, the management ensures that the performance of the organisation conforms to its plans and objectives. The deviation of the actual cost from standard cost is known as variance. This variance may be favourable or unfavourable. When actual cost is less than standard cost the variance is favourable, but when the actual cost is more than standard, the variance is said to be unfavourable. In this case study the company calculates the variances for the raw material, labour cost, and overheads.

The standard cost in general are fixed on the basis of past average performance and future/expected policies of government and not on idealistic basis or experimental basis. Standards cost is a pre-determined cost based on a technical estimate for

materials, labour, and overhead, for selected period of time and for prescribed set of working conditions.

It calculates the material variances for the material prices cost, material quantity cost and material yield cost. The standards for raw material are set on the basis of past record and not by scientific computation or test run basis. Material price standards are fixed on the basis of market price and expected price. When they use expected price standard, they apply the statistical forecasting and purchase price of most recent orders.

Various variances are calculated for the labour such as, labour rate, idle time and labour mix. They company does not use the labour rate variance or idle time variance. Labour rate variance is that portion of labour cost variance which arises due to the difference between standard labour rate and actual labour rate. Idle time variance is that portion of labour cost variance which arises due to the abnormal idle time of workers.

To set the labour rate standard, the methods used are normal operating conditions, union contracts, and past experience etc. But in this company the company use normal operating conditions and past experience.

Labour efficiency standard is determined on the basis of average past performance records and not on time and motion study. Labour efficiency reflects the difference in the time taken

as compared to the standard. Time and motion study determines the time to be allowed for each operation involved. This time and motion study is done by department of production engineering.

The company calculates overhead variances like capacity variance and efficiency variance. Capacity variance is related to the under-and over-utilisation of plant and equipment and arises due to the idle time, strikes and lock-out etc. Efficiency variance is related to the efficiency of workers and plant.

The overhead rate standards are set on the basis of past records and normal operating conditions. But they do not use the future trend of prices. The company also calculates sales variances for sales volume and sales price and not for sales mix. The approximate period for reviewing various standards for incorporation is quarterly. The periodicity of calculation of variances is monthly.

The company is using budgetary control technique and prepares material budget, labour budget and overhead budget. Material budget can be classified into material requirement budget which gives the quantity of material required during the budget period to attain the production target, and material procurement budget, which provides information about the material to be acquired from the market during the budget period. Labour budget is classified into labour requirement budget, which is

developed on the basis of production budget given, and detailed information regarding the different classes of labour, and labour recruitment budget, which is prepared on the basis of labour requirement budget after taking into consideration the available workers in each department and the expected changes in the labour force during the budget period due to the labour turnover. Overhead budget gives an estimate of the work overhead expenses to be incurred in budget period to achieve the production target.

In preparing these budgets two methods can be followed; flexible budget, which is designed to change in accordance with the level of activity actually attained and, fixed budget, which is drawn for one level of activity and one set of conditions. In this case study the company follows fixed budget method.

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CHAPTER SIX

**CASE STUDIES OF INDUSTRIAL
ENTERPRISES OF JORDAN AND
THEIR COST ACCOUNTING
PRACTICES**

CASE STUDY 1

- 6.1.1 The Jordan Cement Factories Company (JCFC)
- 6.1.2 Cost Accounting Practices in JCFC

CASE STUDY 2

- 6.2.1 Jordan Phosphate Mines Company
- 6.2.2 Cost Accounting Practices in JPMC

CASE STUDY 3

- 6.3.1 Intermediate petro-chemical Industries (IPI)
- 6.3.2 Cost Accounting Practices in IPI

CASE STUDY 4

- 6.4.1 Jordan Paper and Cardboard Factories Company Ltd.
- 6.4.2 Cost Accounting Practices in JPCF

CASE STUDY 5

- 6.5.1 Arab Paper Converting and Trading (APCT)
- 6.5.2 Cost Accounting Practices in APCT

CASE STUDIES OF INDUSTRIAL ENTERPRISES OF JORDAN AND THEIR COST ACCOUNTING PRACTICES

Case Study-1

Jordan Cement Factories Company (JCF)

A. General Information:

Jordan Cement Factories Company was set up in December 1951 as a share holding company. In March 1954 the company commenced business with the first bag of cement. The company is wholly owned by Jordanian government with the principal objective of manufacturing, distributing and trading cement, inside and outside the kingdom either direct or through intermediary in convenient ways and conditions. The registered office is located at Al-Fuhais, Amman. This company was amalgamated with company known as South Cement Company and became one company known as Jordan Cement Factories company (JCFC) with authorised capital of J.D. 60.44 million, paid-up capital J.D. 60.44 million and subscribed capital J.D. 60.44 million as on 31 December 1994. Cement factories in Jordan are mainly concentrated in Fuhais and Rashdeh. The total fixed assets of the company as on 31.12.1994 were J.D. 25.36

million. The long term-liabilities as on 31.3.1997 were J.D. 25.36 million.

B. Production Performance:

The production policy of the company is formulated by the Board of Directors and executed by the manager who is incharge of production. The production target is formulated keeping in view the demand of its products. The production performance of JCFC for a few years has been outlined in the table.

Table 6.1

Production Performance of JCFC

(Million Tonnes)	
Year	Actual Production
1987	2.37
1988	1.77
1989	1.92
1990	1.73
1991	1.67
1992	2.65
1993	3.43
1994	3.4
1995	3.41
1996	3.5

Source: Annual Reports of JCFC from 1987-1997.

The table reveals that the production performance of the company is highly satisfactory. The highest achievement of production was recorded in the year 1996. The lowest achievement of production was recorded in the year 1991. The production of 1996 is 2.96% more than that of the previous year.

C. Marketing Performance:

The General Manager formulates the marketing strategies after considering goals and objectives set by the board. The company sells its products both in domestic markets and outside the country also. The price of the products are determined by the government. The sales performance of the company is specified in table 6.2.

It is evident from the table-6.2 that the sales performance of the company is highly satisfactory. It has an increasing trend of sales in every year over the previous year except in the year 1994, where net sales decreased by 1.57 percent over the previous years. However, this amount of 74.94 percent is more than the year of 1989. The net sales has increased by 91.05 percent in 1996 over the base year.

Table 6.2
Sales Performance of JCFC

(J.D. in Million)

Year	Net Sales	Percentage charge over previous year
1989	57.35	--
1990	59.81	4.28
1991	65.63	9.73
1992	85.51	30.29
1993	101.91	19.17
1994	100.33	1.57
1995	104.32	3.97
1996	109.57	5.03

Source: Annual Reports of JCFC from 1989 to 1996.

D. Financial Performance:

The company uses various ratios for analysis of its financial performance in order to disseminate them to the top management for decision making. The capital structure of the company is determined by the board of directors. The capital of the company is financed by the shareholders. The working capital of the company is arranged from the company's own fund as well as by taking loans from financial institutions and commercial banks. The financial performance of the company for the last few years has been pointed out in the table-6.3.

Table 6.3
Financial Performance of JCFC

(J.D. in Million)

Year	Net Profit/Loss	Percentage change in Profit Loss over previous years	Percentage of dividend declared
1989	(2.28)	--	6
1990	3.97	274.12	6
1991	4.41	11.08	6
1992	10.30	133.56	9
1993	19.18	86.21	10
1994	16.89	-11.93	14
1995	16.45	-2.60	10
1996	11.32	-31.18	11

Source: Annual Report of JCFC from 1989 to 1996.

The table indicates that the company has earned net profit in every year except in the year 1989. But the fluctuation is not uniform. This is due to the frequent change of price of cement products both in the domestic and international market. The net profit is the highest in the year 1993, that is 86.21 percent more than the previous year. The company also declared and paid dividend every year. The rate of dividend is varying with the amount of profit earned by the company. It reveals that the financial health of the company is worthwhile, and is growing well due to better realisation from its products and increasing the volume of sales.

E. Personnel Employed:

The JCFC provide employment in a good number by its various divisions and departments all over Jordan in 1994. The total manpower strength in the company is 2753. Among them 2608 male, 36 female, 109 non-Jordanians. Among them executive and supervisory personnel are 386, includes skilled workers 576, semi-skilled are 698, unskilled represent 865 and the rest 228 belong to other categories. It is also maintaining a training institute of its own to impart training to its vast number of workers, staffs and employees. The evaluation of their performance is also done by the Board of Directors. The labour management relations of this company is highly satisfactory.

Cost Accounting Practices in JCFC Company:

In order to ascertain the cost of products for a particular period of time. The company prepares cost sheet, the cost sheet data are collected from various statements of accounts which have been written in cost accounts either on day to day or regular records. The main elements of cost sheet are prime cost, work cost and cost of production.

The main principle that underlines the cost classifications of main elements of the cost is fixed and variable cost basis. The company does not consider any others basis like direct and indirect costs or revenue and capital cost or functional classification for cost classification. Fixed and variable cost is based on the changes in activity or volume. Fixed cost or period cost remain unchanged inspite of changes in volume or activity.

Variable cost or product cost vary in complete proportion to the volume of output. Capital and revenue basis depends on the purpose of expenditure. Any cost incurred in purchasing assets either to earn income or increasing the earning capacity of the business is known as capital cost. But any cost incurred for the purpose of maintaining the earning capacity of the business it is revenue expenditure. Functional classification is based on grouping the costs according to the broad divisions or functions of a business undertaking i.e. production, administration, selling and distribution. Direct and indirect cost depends on the traceability to the product. If the cost is easy to identify from a particular cost unit or cost centre it is direct cost otherwise it is indirect cost.

The analysis reveals that the company exercise the non-integrated cost accounting system as a system for recording the cost and financial transactions. Thus in this system there is a separate set of books for financial transactions and cost transactions.

JCF is giving priority to full cost or absorption cost technique as a costing technique. This method of costing considers fixed and variable cost as a part of product cost. The company does not use marginal costing technique which relate to the change in output and examines the additional costs incurred in increasing production by a given quantity or block of units.

Activity based costing is also used in JCFC as a costing technique. The company consider eight levels of activities and the company design the structure of cost system. The main reason behind using activity based

costing is the better understanding of overhead cost, for assessing the implications of all business costs for decision making purposes. It help in controlling and managing cost by understanding the events and activities.

In order to show the value of material consumed during the production period, JCF is using material issue analysis sheet or material abstract which denote to material issues, returns, transfers, through periodical analysis of various notes related to materials.

Inventory is the largest current assets. For this and other reasons, inventory control is essentially for business success. From a cost stand point, control of inventory quantity is necessary. In order to have effective inventory control, JCF uses two bin card system. The company does not use ABC analysis or economic order quantity. Two bin card is based on dividing the bin into two divisions; one to storing the quantity equal to the minimum quantity and the other division to store the remaining quantity.

In order to treat the abnormal loss of material which arises due to abnormal reasons like theft, fire, careless handling, etc., JCFC does not consider this loss, because the material is produced in the same company.

The JCFC does not manufacture any joint products or by-product, therefore the company does not follow any method for differentiating joint costs and by-product.

The objective of overhead absorption process is to include in total cost of a product an appropriate share of a firms total overheads. Various basis to absorb overheads has been developed. These basis are machine

hours, unit cost, prime cost and direct labour. JCFC is gives priority to machine hours, labour hours and direct labour hour. The company does not use prime cost basis or unit cost basis. Machine hour rate is the cost of running a machine per hour.

Direct allocation is one of the basis for allocation of indirect costs or overhead costs to various department. JCFC is using this basis for allocation of overheads costs to various departments and centres. The company does not use direct material consumed or machine hour worked. On the basis of expenses for each department the overheads are directly allocated under direct allocation.

The analysis reveals that for the purpose of absorption selling and distribution overheads, various methods are used; . rate per unit, percentage on work cost, percentage on selling price of each unit. JCFC uses a percentage on selling price of each unit as a basis for absorption selling and distribution overhead. Selling overheads comprise all expenses incurred from the time the products are in saleable state till they are sold and delivered. Distribution overheads consist of all expenses incurred from the time it is completed in the factory until it reaches its destination.

Over time which represent the work done beyond the normal work period. JCFC is treating over time wages to profit and loss account. The company does not charge to factory overheads accounts.

Idle time which represent the time for which the employer pays but from which he obtains no production. It is clear that the idle time arising

due to non-availability of raw materials is charged to costing profit and loss account and not to factory overhead accounts. This idle time is normal when this wastage time cannot be avoided and abnormal when wastage time can be avoided.

The analysis indicates that the company compares the total output with the total man hours, in order to calculate the labour productivity. Labour productivity is applicable where most of the work is done by hand labour. JCFC does not use other criteria for calculating labour productivity such as comparing standard time with actual time or comparing added value of the product with total wages cost. All factory labour, direct and indirect should be included while calculating labour productivity.

In JCFC the pricing policy is determined by the government. After coordination with the company, for pricing the input material the company follow average price method. Average price method is based on issue the material at the average cost of material in store. Market price can either be the replacement price or the realisable price. Cost price of each lot based on pricing the materials issued to production at their purchase prices and material in the store when they are capable of being identified as belonging to specific lots.

In the case of pricing main products and finished products, the pricing policy is determine by the government. After coordination with the company. But it is reveals from the discussion that the company considers the full cost system in pricing policy.

Comparison actual results with budgets helps management evaluate operations. Management can see the impact of key variables on the actual results and focus on areas that deserve attention. The deviation of actual cost from standard cost is known as variance. This variances may be favourable and unfavourable. JCFC is calculates variances variances related to raw material, labour cost and overheads cost.

In order to achieve its standard cost the company focus on average of past performance as a basis for setting standards. Standard cost explain how much cost should be under specified working conditions. The success of standard costing depends upon the establishment of correct standards.

JCF calculates variances related to materials for material price variance, material quantity and material yield. The company does not use scientific computation or test run basis for setting standards.

The analysis indicates that the company calculate the variances related to labour, and highlight labour rate of pay variance, idle time variance, labour mix variances. Labour rate variance which arises due to the difference between the standard rate specified and actual rate paid. Idle time variance which arises due to abnormal idle time of workers. Labour mix variance shows management as to how much the labour cost variance is due to the change in the composition of labour force.

The company places the priority to past experience in the case of setting standards of labour rate. The company does not use normal operating conditions or union contracts.

The difference between standard labour hours and actual labour hours spent is known as labour efficiency variance. To achieve the standards of labour efficiency, the company considers its past performance records. The company does not use time and motion study which determine the time allowed for each operation involved.

The company considers the variances related to overheads, mainly efficiency variance, capacity variance, calender variance. Capacity variance which arises due to working of higher or lower capacity than the standard capacity. Efficiency variances arises due to difference between actual efficiency and budgeted efficiency.

A number of methods are used for setting the overhead rate standards. These methods are future trend of prices, normal operating conditions and past records. The company considers all of these techniques.

The company expresses its procedure in treating idle time of labour in different ways. In case the idle time is normal the company charging it to a provision in costing records. But if it is abnormal the company charged it to profit and loss account.

Sales variances is calculated related to different aspects of sales like sale mix, sales volume and sales price. Sales mix is the relative combination of quantities of products that constitute total sales.

JCFC are calculating variances for various elements of cost on monthly basis and the period of reviewing and revising the various

standards are according to the need.

Budgetary control is widely used as a tool for control and evaluation performance of all the functional areas of the enterprise. It is the most significant technique of management control. The company prepares the production budget which include material budget, labour budget and overhead budget. Material budget which shows the material required and the quantity of material to be acquired from the market during the budget period. Labour budget is based on labour rates, pay roll methods and pay roll duties, overhead budget which depend on segregate the fixed and variable expenses.

The budget are drawn up on the basis of flexible or fixed. Flexible budget which tends to change in accordance with the level of activity. Fixed budget is drawn for a single predicted activity level. The company here is uses flexible budget for drawing its budgets. The period of revising estimate in the flexible budget is monthly.

Case Study-2

Jordan Phosphate Mines Company (JPMC)

General Information:

JPMC was established as a private company in 1935, to exploit phosphate deposits in Russaifa. In 1935 it became a public share holding company. The company started production in 1962 from Al-Hassa mine,

located about 136 km South of Amman and 200 km north of Aqaba port. JPMC has three mines in different locations Al-Hassa mine, Al-Abiad mine and Eshidia mine. In 1982, a fertilizer complex was constructed about 17 km south of Aqaba to produce phosphatic acid, diammonium phosphate (DAP) and aluminium Flouride. The Registered office of the company is located in Al-Shmaisani AMMAN.

The authorised capital as well as paid up capital of JPMC as at the end of 1994 was 44 JD million JD 43 million, respectively. The total fixed assets were JD 348,133,821 at the end 1994. The working capital were J.D. 99,385,221 million at head of 1994.

The Jordan phosphate rock is being marketed on an international basis for the past 60 years and has established itself as a prime source in the global fertiliser industry. UPMC products conform to the international and regional environmental policies. The company has been successfully exporting its products to more than 30 countries and is ranked the second largest exporter in the world. JPMC achieved a steady presence in the international market and attained 15% market share.

B. Production Performance:

The production performance of JPMC for the last several years is given in table.

Table 6.4

Production Performance of JPMC

(Million Tonnes)

Year	Actual Production
1988	5.62
1989	6.84
1990	6.08
1991	4.85
1992	5.227
1993	4.215
1994	4.086
1995	4.98
1996	5.42

Source: Annual Report of JPMC, Jordan from 1988-1996.

The table reveals that the production performance of the company is almost satisfactory. The capacity utilization during the year 1994 was 97.2% and it was the highest during recent past.

C. Marketing Performance:

The marketing functions of the company is performed by various marketing division in the country and through some agents outside of the country. The marketing strategies of the company are formulated after considering goals and objectives set by the board. The company

sells its product both in domestic and overseas market. The company exports its produces directly and the government also provides necessary assistance by making available two berths for shipment in Aqaba port. The sales performance of the company is given in table 6.5.

Table 6.5

Sales Performance of JPMC

(J.D. in Million)

Year	Net Sales	Percentage change in over previous year
1989	247.8	--
1990	232.5	-6.17
1991	218.6	-5.98
1992	206.14	-5.70
1993	149.45	-27.50
1994	191.6	28.20

Source: Annual Report of JCFC from 1989 to 1996.

It is evident from the table that the sales performance of the company is decreasing in every year over the previous year except in the year 1994, where net sales has increased by 28.20 percent over the net sales of previous year. The highest sales performance was in the year of 1989. The lowest net sales was in the year of 1993.

D. Financial Performance:

The JPMC has an authorised capital of JD 44 million and subscribed capital of J.D. 43 million and paid-up capital was J.D. 43 million on December 1994. Capital increased to J.D. 44 million by public subscription through offering 9.8 million shares during 1994, only 8.8 million shares were purchased, the remaining 1 million was covered through private subscription on January 1, 1995. The table-6.6 reveals that the financial performance of JPMC.

Table 6.6
Financial Performance of JPMC

(J.D. in Million)

Year	Net Profit/Loss	Percentage change in Net Profit/Loss	Dividend % of dividend over net profit	
			Divident	Profit
1990	20.5	--	5.13	25.02
1991	15.7	-23.4	5.13	32.67
1992	6.98	-55.54	5.13	73.5
1993	24.2	-446.70	0	0
1994	182.6	+654.5	0	0

Source: Jordanian Shareholding Companies Guide, Amman Financial Market Issue, No. 10, 1995.

The table indicates that the company has earned net profit in almost every year except in 1993, 1994. This is due to frequent change in price of phosphate and fertiliser both in the domestic and international markets. The net profit is the highest in the year 1990.

The company also declared and paid dividend every year except the year of 1993 and 1994. The rate of the dividend is varying with the amount of profit earned by the company.

C. Personnel Employed:

The personnel policies of the company is formulated by the boards of the company. The selection, promotion, transfer and pay roll of the key personnels of the company are done by the board. The JPMC is considered to be a major employer of the Jordanian workforce. The total number of manpower was 5516 on 30 April 1994. Among them official staffs 388, skilled and semi skilled workers and were 1086 unskilled 4032 workers. The company provide many facilities and incentives to the workers like health services, housing facility and financial incentives to the better performance of the workers.

Cost Accounting Practices (CAP) in the JPMC:

Cost sheet which enables the management in identifying the causes of inefficiencies and wastage which guide the management in taking corrective action is used in this company. This tool is used in JPMC cost accounting system. Cost sheet with its main elements; prime cost, works cost, cost of production are calculated to prepare the cost sheet. The data incorporated in cost sheet are collected from different statements of accounts.

For decision making purpose, management is to be fed with necessary data which helps the management in profit planning which is achieved by means of budgets, cost control, formulation pricing policy, fixation selling prices. So, to achieve the above objectives, it is necessary to analyse and classify costs. Classification is required to arrive at the detailed costs of various jobs, processes or departments. Different bases are used for cost classification. According to changes in activity or volume the cost is divided into fixed and variable. The basis which classify the cost according to changes in activity or volume is used by JPMC. The another basis of classification in JPMC is direct and indirect costs. Direct cost are those costs which can conveniently and economically be traced to specific units of output. Indirect cost represents the costs which cannot be allocated but can be absorbed by cost centres or cost units. The JPMC does not use other basis like capital and revenue cost basis or functional classification to divide the cost.

The company keeps its books under non-integrated cost accounting system which records the financial transactions in separate ledger and costing transactions in another ledger.

The absorption costing method is used which considers the fixed cost as a part of production cost. But JPMC does not follow or use marginal costing or activity based costing. Under marginal costing only variable or direct cost is assigned to the products. Activity based

costing reveals the links between performing particular activities and the demands those activities make on the organisation resources.

It is clear from the analysis that all the movements and transactions related to material issue, transfer, returns is summarised in one sheet known as material issue analysis sheet. Through this analysis sheet the company can get the amount of material consumed.

In the case of inventory control, perpetual inventory system is used by the company which depend on recording store balances after every receipt and issue, to facilitate regular checking and to obviate closing down for stock-taking. The company does not use ABC analysis or economic order quantity. ABC which highlights on different materials are grouped into three class; high priced material (A), medium priced material (B) and low priced materials (C). EOQ is the re-order quantity to determine the optimum quantity of material which can ideally be purchased each time most economically.

The analysis reveals that the company treats the abnormal loss of material cost to cost of production. Abnormal loss of material which arises due to abnormal conditions i.e. theft, fire, careless handling etc.

The company follow the relative sales value method of the products which is the most important criterion for distinguishing between scrap, by-products and joint products which depend on the sales value of every product to total sales value. The JPMC does not

use planned profit method.

The company considers machine hours and labour hours as a basis for absorption of factory overhead. JPMC does not use the unit cost, prime cost basis or material cost basis or labour cost basis for the purpose. Machine hour rate is cost of running a machine per hour. It is used in those industries or departments where machinery is predominant and there is little or particularly no manual labour, prime cost one of the basis used for absorption of factory overhead. Prime cost rate depends on budgetary overhead expenses and aggregate of direct material and direct labour cost of products.

The company applies machine hours worked as a basis for allocation of overheads cost to various departments. The JPMC does not use direct allocation or direct material consumed. Allotment of whole item of cost to cost centres or cost units is known as cost allocation.

A number of criteria are used for absorption of selling and distribution overhead. Those criteria are rate per unit, percentage works cost, percentage on selling price of each unit. Percentage on selling price criterion is applied in JPMC. Selling overheads represent the expenses incurred in creating demands for products. Distribution overheads consist of all expenses incurred from the time product is completed in the factory till it reaches its destination.

The analysis indicates that overtime wages is charged to factory

overhead accounts. They are not charged to profit and loss account. Over time represent the work done beyond the normal work period.

The analysis reveals that the idle time arising due to non-availability of raw material is charged to factory overhead accounts and not to profit and loss accounts. Idle time represent the wastage of time arising due to normal and abnormal conditions. Normal idle time represent the time that the wastage cannot be avoided and abnormal idle time represent that time the wastage can be avoided if proper precautions are taken.

In case of labour productivity, the company uses the total output with the total man hours as a basis for measuring labour productivity. Where most of the works are done by manual labour, it is necessary to know the efficiency of labour through measuring productivity. The company does not use another criteria like comparing actual time with standard time or comparing added value for the product with total wages cost.

The analysis shows that the company places highest priority to the average price method in order to price the input material. The company does not use the cost price of each lot or market price method. Cost price of each lot based on the materials issued to production are priced at their purchase prices, and material in the store are capable of being identified as belonging to specific lots and priced at their purchase price. Average price method is based on the

assumption that the materials are issued at the average cost of materials in store. Market price can either be the replacement price or the realisable price.

In case of pricing the main products the company considers variable cost and fixed cost. The company belongs to public sector in Jordan so the price is determined by the government after coordination with the company boards. But the final price of finished product is depends on market price.

The control of cost is as important as the ascertainment of cost. The most efficient costing system is one which not only reveals the cost of each unit produced, but which at the same time explains why such cost differs from a predetermined estimate. This is achieved by standard costing. The deviation of the actual cost from standard cost is known as variance. This variance may be positive or negative; positive when actual cost is less than the standard cost and negative when actual cost is more than the standard cost. JPMC is calculating variances for raw material, labour cost and overheads.

A number of information are required regarding various performance for setting standards. It is revealed that the average of past performance is considered at the time of setting standards for performance. The company does not consider idealistic basis or experimental basis for setting standards. The company calculates variances for materials and highlight on

material prices, material quantity cost and material yield cost. The standards are set based on past records and expected price. The expected price is based on long term purchase contracts and not on statistical forecast. The company does not use scientific computation or test run for setting standards.

Various types of variances are calculated for labour. These variances are labour rate variance, idle time variance and labour mix variance. The company emphasize labour rate variance and labour mix variance. The difference between standard labour rate and actual labour rate is known labour rate variance. Labour mix variance shows how much the labour cost is due to change in the composition of labour. Union contract is considered to be the main basis for setting labour rate standards. The company does not consider normal operating conditions or past experience.

In the case of setting standards for labour efficiency the JPMC emphasizes average of past performance. The company does not use time and motion study. Labour efficiency reflects the difference between actual time and standard time. Time and motion study describes how much time is to be allowed for each operation involved.

Capacity variance which is related to under or over utilisation of plant and equipment and arises due to idle time, strikes and lock-out etc. This variance is calculated in JPMC as

one of the overhead variances. But the company does not consider the efficiency variances which is related to the efficiency of workers and plant. The overhead standards are set based on past records of the company, normal operating conditions and future trends of prices.

The sales variances for sales volume is calculated in JPMC. The period of variances analysis is every quarter of the year and the period of reviewing and renewing the various standards are yearly.

Budgetary control is one of the important tools for management control. It is used at all levels of management in different functional areas. It is prepared annually by the finance division. JPMC is using budgetary control as a tool of control. The company prepares the budgets for various elements of cost, such as material budget, labour budget and overhead budget.

Material budget represents the material required during the budget period and the material to be acquired from the market during that period. Labour budget which includes the labour requirement during the budget period after taking into consideration the available workers in each department, and the expected changes in labour force during the budget period. Overheads budget which provide an estimation of overhead expenses to be incurred during the budget period. These various types of budgets are prepared in JPMC on the basis of flexible budget which is designed to change in accordance

with the level of activity actually attained. The period of revising the estimation in flexible budget is half yearly.

Case Study-3

Intermediate Petro-chemicals Industries (IPI)

A. General Information:

Intermediate petro-chemicals industries was established on 28 February 1980 as a shareholding company in private sector. The main objective of this company is production and marketing of all intermediate petro-chemical products and derivatives. This include manufacture and production of seeds and compounds of the PVC and carriage boards of fibre glass, low aromatic solvents for the production of paints, driers and insecticides. Monomeric plasticizers for the production of flexible PVC compound, paints, tanning and adhesives. Organic peroxides which initiates for unsaturated polyester resins curing. The company manages seven factories each, produces a specialised material. These factories are located in the Silver Anniversary Area along Al-Zarqa Highway. The registered office of this company is located at Awajan Al-Zarqa. The authorised capital of IPI on December 1994 was J.D. 600,000 and the subscribed and paid-in-capital were J.D. 400,000 and 100,000 respectively. The shareholders equity on 1994 was J.D. 5.5 million.

B. Production Performance:

The production function of the company is performed by the GM (Factories). He executes policies and strategies set by the Board of Directors, which formulate plans and policies of the company. The production performance of IPI for the last several years are given in table-6.7.

Table 6.7
Production Performance of IPI

(J.D. in lakhs)		
Year	Actual Production	% change over previous year
1990	81.74	
1991	51.07	(37.67)
1992	48.29	(5.44)
1993	45.63	(5.50)
1994	44.2	(13.11)
1995	27.79	(37.14)

Source: Annual report of IPI from 1990 upto 1995.

The table reveals that the production performance decreasing every year. The highest achievement of production was recorded in 1990. But the lowest value achievement of production was recorded in 1995. The production of 1995 is 37.14% less than the previous year and 66% less than the base year.

C. Marketing Performance:

The marketing function of the company are performed by its whole time director. He formulates marketing strategies for the company after considering goals and objectives set by the board and takes necessary steps for its execution. The company sells its product both in domestic and international market. The sales performance of the company is specified in table 6.8.

Table 6.8

Sales Performance of IPI

(J.D. in Million)

Year	Net Sales	Percentage change in over previous year
1987	5.09	--
1988	5.15	1.17
1989	11.52	123.68
1990	10.83	-5.99
1991	6.51	-39.88
1992	5.25	-19.35
1993	5.03	-4.19
1994	5.80	15.30
1995	3.11	-46.37

Source: Annual report of IPI from 1990 upto 1995.

The table reveals that the sales performance of IPI for the first five

year was satisfactory. But after the year of 1990 the sales performance was not satisfactory. It decreased every year. The lowest sales was in the year of 1995 which is 38.89 percent in comparison to the year of 1987 and 46.37 percent lower than the previous year.

The performance of 1989 was to some extent better which is 123.68 percent more than the previous year's performance, but this is also only 126.32 percent of the net sales of the year 1987. This situation is very much unhealthy and alarming for the company. So the overall sales performance of the enterprise needs to be improved for its existence.

D. Financial Performance:

The capital of the company increased to JD 6 million from private subscription through offering 2 million shares on August 30, 1993. The equity ratio of this company was 53.8 percent on 1993 and increased to 62.66 on 1994. The total liabilities to total assets is 37.34 percent on 1994. The financial performance of IPI for the last few years is specified in table-6.9.

The table indicates that the company has earned net profit in almost every year except in 1994 and 1995. But rate is not uniform. This is due to frequent change of price of the company products both in domestic and international market. The net profit is highest in the year 1990 that is 46.74 percent more than the previous year. The company also declared and paid dividend every year except the years of 1993, 1994 and 1995. It is evident that the financial health of the company is worthwhile.

Table 6.9**Financial Performance of IPI**

(J.D. in Million)

Year	Net Profit/Loss	Percentage change of Net Profit/Loss over previous years	Percentage of dividend
1987	4.90	--	N.A.
1988	6.53	33.26	N.A.
1989	13.52	107.04	8.00
1990	19.84	46.74	12.00
1991	7.90	-60.18	8.00
1992	8.71	10.25	8.00
1993	0.48	-94.48	00
1994	(1.65)	443.75	00
1995	(2.44)	247.87	00

Source: Annual Report of IPI from 1987 to 1995.

E. Personnel Employed:

The personnel policies of the company is formulated by the boards of the company. The selection, promotion, transfer and payroll of the key personnels of the company are done by the board with the consideration of GM's recommendations. The total manpower of the company is 119 on 31st December 1995 was 1190. Among them officials and staffs are 45, followed by 58 as skilled and semi-skilled workers and 16 as unskilled workers. The company provides

financial incentives to the workers for better performance.

Cost Accounting Practices in IPI:

IPI prepare costs sheet to determine the cost of products for a particular period of time. The cost sheet include many elements; prime cost, works cost, factory cost and cost of production. The data incorporated in cost sheet are collected from various statements of accounts.

The company uses direct and indirect cost for the purpose of costs classification. The company does not apply other basis for costs classification like; fixed and variable costs, capital and revenue costs, production and administrative costs. Direct and indirect cost depend on the traceability to the product. Direct cost is the cost that is easy to identify to a particular cost unit or cost centres, but indirect cost cannot be easily identified or traced to a particular cost units or products. Fixed and variable cost which depend on changes in activity or volume. Fixed cost remain unchanged despite of change in volume of activity. Variable cost or product cost which vary in total proportion to the volume of output. Capital and revenue basis which depend on the purpose of expenditure. Capital cost represent the cost which is incurred in purchasing assets either to earn income or increasing the earning capacity of the business. An expenditure is done in order to maintain the earning capacity of the concern such as cost of maintaining an assets or running a business is revenue expenditure.

The company uses the integrated cost accounting system for recording the financial and cost transactions in one self contained ledger.

The IPI uses the absorption costing technique as a method of costing in the company. Under this technique most of the fixed costs are treated as a part of production cost. The company does not practise the marginal costing or activity-based costing technique. In marginal costing technique only variable cost as form the part of production cost. Activity based costing establishes the links between performing particular activities and the demands of those activities on the organisation resources.

IPI is giving priority to ABC analysis as a technique of inventory control. But the company does not use economic order quantity technique or double bin card system. ABC analysis which is based on itemizing total annual purchase cost of each item needed and grouping in decreasing order of annual consumption cost. Details of receipts and issues of materials are shown on the double bin card. EOQ which represent the optimal quantity of inventory to order.

The analysis indicated that the company treat the abnormal loss of material by charging it to cost of production account. Abnormal loss of material which arise due to abnormal reasons i.e. theft, fire, careless handling etc.

They do not manufacture any joint product or by-product, therefore the company does not consider any method for differentiating

joint costs and by-products cost. It is clear from the data that all the movements and transactions related to materials are summarised in one analysis sheet called material issue analysis sheet. Through this sheet the company get detailed information about the material issued, transferred, returns. Finally this analysis sheet show at a glance the value of material consumed.

The main basis for the overhead absorption in IPI is the prime cost basis. Prime cost includes direct material, direct labour and direct expenses. The company does not use machine hour, unit cost or direct labour cost as a basis for absorption of overhead.

IPI prefer direct material consumption as a basis of basis for allocation indirect costs or overheads to various departments or centres. The company does not use direct allocation on machine hour worked basis.

Selling and distribution overheads are absorbed in IPI on the rate per unit basis. The company does not consider the other basis like percentage on works, cost or percentage on selling price of each unit. Selling overheads consist of all expenses incurred from the time the products are saleable state until they are salable and delivered. Distribution overheads comprise all expenses incurred from the time it is completed in the factory till it reaches its destination.

The company treat overtime wages to charge it to factory overhead account. The company does not charge overtime wages to

profit and loss account. Over time wages is represented by the work done beyond the normal work period.

In the case of idle time, due to non-availability of raw materials IPI is charging this idle time to factory overhead accounts. The company does not charge it to profit and loss account. The idle time may be normal and abnormal, normal idle time when the wastage time could be avoided and abnormal when wastage time can be avoided.

In order to measure the labour productivity, the company compares added value of the products with total wages cost. The company does not use other methods like comparing actual time with standard time or total output with total man hours. Labour productivity is applicable where most of the work is done by hand labour.

IPI use the cost price of each lot method in order to pricing the in put material in production. The company does not follow the market price method or the average price method. Cost price of each lot depends on pricing the material at their purchase prices and material in the store are also priced per their lot purchase cost.

In the case of pricing main product and finished products, the company follow the full cost system or absorption costing technique. Fixed and variable costs are assigned to the product.

It is clear from the analysis that the company follow the variance analysis and calculate the variances for material, labour, overhead. With the help of variances the management can evaluate the

operations easily can focus on areas that deserve attention. The deviation of actual cost from standard cost is known as variance. This variance may be favorable and unfavourable. Favourable when actual cost less than standard cost and unfavourable when actual cost more than standard cost.

The standards are set on experimental basis. The company does not use the other basis like idealistic or average of past performance. Standards cost explains how much costs should in specified working conditions. The success of standard costing depends upon the establishment of correct standards. The standards should establish for each element of cost and should be attainable.

IPI calculates various variances related to material like; material price, material quantity and material yield. The company set the standards related to the material based on scientific computation. The company does not use test run or past records for this purpose. The company also set the standard rate based on market price.

The analysis indicates that the company analyses the various variances related to labour like labour rate variance, idle time variance, labour mix variance. Labour rate variance which arises due to the difference between standard rate and actual rate. Idle time variance arises due to abnormal idle time of workers. Labour mix variance shows to management how much the labour cost variance is due to the change in the composition of labour force.

The company place the priority to the normal operating condition as a basis for setting labour standards. The company does not use past experience basis or union contracts basis.

It is revealed from the analysis that the company based on the average of past performance as a basis for setting standards of labour efficiency. The company does not follow the time and motion study as a basis of setting standards of labour efficiency. Time and motion study determine the time to be allowed for each operation involved.

Capacity variance and efficiency are the main variances related to overheads and are calculated by IPI. Capacity variance which arises due to working higher or lower capacity than the standard capacity. The difference between actual efficiency and budget efficiency is known as efficiency.

The overhead rate standards are set based on normal operating conditions. The company does not use future trend of prices or past records for setting the overhead rate standards.

The company treats the idle time of labour direct to profit and loss account, if this idle time is abnormal and to cost of production if it is normal.

IPI calculates the variances relate to sales like sale variance, sales price, sales mix. Sales mix is the relative combination of quantities of products that constitute total sales.

The company calculates various variances for various elements of cost on quarterly basis and the period of review and revision of standards is on bi-annual.

IPI applies budgetary control as an instrument of decision making. In order to prepare production budget the company prepares raw material budget, labour budget and overhead budget. Material budget consist of the information on the quantities of material required and the material to be acquired during the budgeted period. Labour budget which show how much the labour force needed for every operation involved during the budget period. Overhead budget shows the amount of indirect expenses required to be incurred.

The budgets are drawn up either on flexible basis or fixed basis. Flexible budget is designed to change in relation to the level of activity actually attained. Fixed budget is design to remained unchanged, irrespective of the level of activities actually attained. IPI here follow the fixed budget technique and the period of revising the estimates in flexible budget is monthly.

Case Study-4

Jordan Paper and Cardboard Factories Company Ltd. (JPCF)

A. General Information:

The company was established in 1973 with a capital of 1.5

million dinars. The capital was raised in 1990 to 3 million Jordan dinars. The company commenced its activity with a paper factory in 1973, and started production of carton boxes 1976. The company manufactures corrugated boxes for agricultural and industrial purposes with the capacity of forty thousands tonnes of sheets and fifteen thousand tonnes of corrugated boxes. The company has the most advanced machines for printing one and two colours. The company produces various corrugated types of flutes such as B,C and E. The company owns another company under the name of Jordan Cardboard and Duplex Manufacturing Company Ltd. for manufacturing Duplex board, test liner, fluting, chipboard, thick board etc. The production capacity of JPCF is expected to increase within two years. The company assists in servicing the industrial and agricultural sectors in Jordan. The authorised capital and paid up capital were J.D. 3 million , the fixed assets J.D. 4.7 million and the current assets was J.D. 5.13 million as on 31st December 1994. The registered office of this company is located in Al-Zarkar one of the main city in Jordan.

B. Production Performance:

The production performance of the company for the last few years are specified in the table below:

Year	Actual Production (Tonnes)
1993	15958
1994	17922
1995	11573
1996	7730

Source: Annual Report of JPCF from 1993 to 1996.

The table reveals that the production of the company has increased in 1994 over 1993. But in 1995 and 1996 the performance reduced substantially. The highest performance was recorded in 1994 and the lowest is in the year 1996.

C. Marketing Performance:

The marketing policy and strategic are formulated by its marketing division after considering the goals and objectives set by board of directors of the company. The company is trying to increase its market share every year and making an effort to a new market for its products in the country and outside.³ The sales performance of the company is outlined in table-6.11.

Table 6.11
Sales Performance of JPCF Co.

(J.D. in Million)

Year	Net Sales	Percentage change over previous year
1990	8.45	--
1991	8.74	3.43
1992	5.10	-41.64
1993	5.16	1.17
1994	5.74	11.24
1995	7.40	28.9
1996	5.65	-23.64

Source: Annual Report of JPCF Co. from 1990 to 1996.

The table shows that the sales performance of the company has fluctuated drastically. A marginal increase (3.4%) in sales was recorded in the year 1991 over the previous year. But since 1992 till 1994 it reduced badly as compared to 1990. This reduction was also of a high order (more than 42%). Though the performance of 1995 was 28.9% better than 1994 but in 1996 it reduced by 23.64% from its previous year sales performance.

D. Financial Performance:

The turnover of the company for the last three years were J.D. 5.15 million, J.D., 5.74 million, J.D. 7.4 million, respectively. The compulsory reserves of the company as on December 1996 was J.D. 1.42 million. It

also declares dividend every year and contributed substantial amount in the national projects. The financial performance of this company is being outlined in table 6.12.

Table 6.12

Financial Performance of JPCF Co.

(J.D. in lakhs)

Year	Net Profit/Loss	Percentage change of net profit/loss over previous year	Dividend	%age of dividend declared
1990	8.95	--	4.5	15
1991	22.01	145.92	6.00	20
1992	2.62	-88.09	00	00
1993	4.69	79.00	3.00	10
1994	5.99	27.71	3.00	10
1995	5.55	-7.34	3.00	10
1996	5.32	-4.14	00	00

Source: Annual Reports of JPCF Co. from 1990 to 1996.

The table indicates that there is sharp enhancement in profit in the year 1992 registering a change of 146% over its previous year. This was abnormally high profit and the company could declare a dividend of J.D. 6.00 lakh which is also maximum in recent years. In 1995 and 1996 there was a reduction in profit performance and the dividend declared were only JD 3.00 lakh and zero respectively in these years. Though the company

has not registered any loss but the rate of profit has not been satisfactory.

E. Personnel Employed:

The total number of employees in JPCF Co. were of 238 in December 1994. Out of them 65 were managerial and supervisory, 60 staffs, 80 skilled, 20 semi-skilled and the rest were unskilled personnel. The key personnel of the company are appointed and promoted by the board's on the recommendation of GM

Case Study-5

Cost Accounting Practices in (JPCF).

The company prepares the cost sheet with its main elements; prime cost, works cost, cost of production. Cost sheet enables the management to fix up sales price of products. It also provides a detailed information about cost of product manufactured during a particular period of time.

JPCF is classify their cost elements on the basis of fixed and variable cost. The company does not use the other basis like direct and indirect cost, revenue and capital cost or functional classification.

Fixed and variable cost is depends on the changes in activity or volume. Fixed costs or period costs depend on time rather than on output and remain unaffected by variations in volume of output. Variable cost or product cost vary in direct relation to the volume of output. Revenue and capital expenditure depend on the purpose of expenditure incurred. Capital cost represent the cost incurred in purchasing assets either to earn income

or increasing the earning capacity of the business. Revenue cost is needed in order to maintain the earning capacity of the concern such as cost of maintaining an assets or running a business. Direct and indirect costs are based on traceability to the product. Direct cost represent the expenses that are easy allocated to cost units or cost centres where indirect cost represent that expenses cannot be allocated easily to cost units or cost centre.

Functional classification depends on grouping of costs according to the broad divisions or functions of a business undertaking i.e. production, administration, selling and distribution. The company maintains cost under integrated cost accounting system where financial and cost data are recorded in single book.

The company uses absorption costing system as a costing technique. Under absorption costing technique most of fixed cost are considered as a part of production cost. The company does not use marginal costing technique which assigns variable costs to products and segregate fixed cost from variable cost. The company also does not exercise activity-based-costing as a technique of costing. Activity based costing focuses on activities as the fundamental cost objects.

In order to evaluate the amount of material consumed during a particular period of time, the company prepares material issue analysis sheet. This sheet include the various notes like record notes, returns notes, transfer notes etc.

The company gives priority to two bin card system for inventory control purpose. The company does not use ABC analysis or economic order quantity. Inventory control includes the recording and monitoring of various stock levels, forecasting future demands and deciding when and how much quantity to order. Two bincard system helps the store keeper in controlling the stock through a particular aspects of receipts and issues of material. ABC is based on items of stock sub-classified by itemizing total annual purchase cost and grouping in increasing order of annual consumption cost. EOQ represent, the quantity of material to be ordered at one time.

Abnormal loss arising due to inefficiency, is treated in the company accounts by charging to profit and loss account.

JPCF is using unit cost as a basis for overhead absorption. The company does not use the other basis like machine hour, prime cost or labour cost. Absorption of overhead is a process to make the overheads as a part of cost of product. Machine hour is most appropriate when the production is mainly carried on mechanically. Prime costs combines the total of direct materials and direct labour cost. Labour cost beneficial in labour intensive cost centre and the workers are paid at the same rate of wages.

In order to allocate the indirect cost or overheads to different departments, the company use the direct allocation. This depend on the expenses incurred on each department. The company does not use the

others basis like direct material consumed and machine hours worked. Cost allocation represent the allotment of whole item of cost to cost centres or cost units.

Selling and distribution overheads are absorbed on the basis of rate per unit. The company does not follow the other basis like percentage on selling price of each unit and percentage on work cost basis. Selling expenses consist of those expenses which are incurred for the purpose of convincing a customer of the desirability of placing an order with the firm. Distribution expenses are expenses incurred in moving the goods from the company's godowns to the customers premises.

The company is treating the overtime wages to charge it to factory overhead account. The company does not charge it profit and loss account. Overtime represents the work done beyond the normal working time.

JPCF is treating the idle time due to non-availability of raw material to charge it to factory overhead account. The company does not treat it to profit and loss account. Idle time may be normal and abnormal.

Labour productivity in JPCF is measured by comparing actual time with standard time. The company does not follow the other measurement like comparing added value for the product with total wage cost or comparing total output with the total man hours. Labour productivity measurement is more convenient when most of the work is done by hand labour.

The analysis reveals that the company follow average price method as a basis for pricing input material. The company does not use cost price of each lot or market price method.

The company follow absorption costing technique in pricing the main products. The company does not used marginal costing technique. In absorption costing all manufacturing expenses are charged to product costs. Also in pricing finished product the company follow full costing system.

JPCF uses relative sales value method as a basis for differentiating joint costs and by-product costs. The company does not use planned profit basis. The relative sales value method based on apportioning joint costs to products on the basis of relative value of sales.

The data indicate that the company follows the variances analysis. The company calculates different variances related with raw material, labour and overheads. The variances related with material are material price, material quantity, material yield. The variances related with labour are labour rate variance, idle time, variance, labour mix variance. The variances related with overheads are efficiency variances, capacity variances. The major operative part in standard costing is the comparison of actual costs with standard costs, working out the variances and tracing the variances to their root cause. The comparison gives an overall measure of overspending or saving in costs. A variances may be favourable or unfavourable if this variance lead to increase in profit and unfavourable

when the results give lower profit.

The company set the standard costs on the basis of average of past performance. It does not use idealistic or experimental basis. The standards related with material are set on the basis of past records. The company does not use any scientific computation. In case of setting standards of labour the company depends on past experience and not on union contracts or normal operating conditions. The company set the standards related with overheads on the basis of past records and future trend of prices. The company does not consider the normal operating conditions. Labour efficiency standards are set on the basis of time and motion study not on the basis of past records. Time and motion study determine how much time required for every operation involved and is always prepared in department of production engineering.

Sales variances are calculated in the company with concentration on sales volume variance, sales price variance. The variances are calculated every half year and the various standards are reviewed for every half year.

The company applies budgetary control and prepare various types of budgets like material budget, labour budget, overhead budget. A budget could be seen as a statement of expected income and expense under certain anticipated operating conditions. Material budget includes the quantities to be used during budget period and the quantities to be acquired. The labour budget is drawn to show the time required for

producing one unit during the budget period and the wages to be paid for this time. Overhead budget which show the amount of expenses to be incurred during the budget period and also seggregate the overheads into fixed and variable.

JPCF prepares its budgets on the flexible basis which is designed to change in accordance with the level of activity actually attained. The company does not follow fixed budget system which is drawn for one level of activity and one set of conditions. The period of revising estimate in flexible budget is quarterly.

Case Study-5

Arab Paper Converting and Trading (APCT)

A. General Information:

Arab Paper Converting and Trading (APCT) was incorporated as shareholding company in private sector on 5 July 1978. Under the Companies Act of Jordan. The registered office of this company is located in Amman. The company has one local branch. The main objective of this company is manufacturing raw paper for producing commercial and school copy books, envelops, computers, calculators and telex paper rolls. The authorised capital of this company as on December 1995 was J.D. 3.5 million, the subscribed and paid-in-capital were J.D. 2.33 million and J.D. 2.33 million respectively.

B. Production Performance:

The production performance of the last few years are given in table-6.13.

Table 6.13

Production Performance of APCT

(Million Tonnes)

Year	Actual Production
1990	1056
1991	818
1992	1100
1993	1309
1994	2338
1995	1924

Source: Annual Report of APCT from 1990 to 1995.

The table 6.13 reveals that the production performance of the company is almost satisfactory for along period of time except in 1991 and 1995. The performance is not upto the mark as the export size was reduced due to sanctions imposed on Iraq which is considered from the main market of this company. Feirce competition in the domestic market and international markets were the other reason. Gradually, the performance has increased. The higher performance was recorded in 1994 due to availability of the machine required to increase the production and the company

developed new production lines and the export size increasing in 1994. The lowest performance in the year 1991.

C. Marketing Performance:

The marketing and distribution function of APCT are performed by its marketing divisions located at different places of Jordan. Every divisions headed by a Manager (Marketing) who along with his subordinate executives perform the functions of selling and distribution of products.

The sales performance of APCT for the last few years are specified in table 6.14.

Table 6.14
Sales Performance of JPCT

(J.D. in Million)

Year	Net Sales	Percentage change over previous year
1087	5.1	--
1988	5.24	4.5
1989	11.72	123.66
1990	13.46	14.84
1991	9.76	27.48
1992	11.89	21.82
1993	16.37	37.67
1994	27.66	68.96
1995	25.55	7.62

Source: Annual Report of APCT from 1987 to 1995.

The analysis indicates that the sales performance of the company is increasing every year except in the year 1991 and 1995. But there is variation in the rate of net sales over the previous year. The net sales increased by 442.35 percent in 1994 in comparison to 1987 and it is 68.96 percent more than the previous year. The sales performance of the company is satisfactory.

D. Financial Performance:

The company was established with a capital of one million Jordanian dinar, divided into one million share of a par value of one dinar per share. In 1991 the board of directors agreed to reduce the capital from one million to J.D. 500,000 in order to cover the accumulated losses of the company but in 1993 the capital was increased to J.D. 3.5 million by private subscription through offering (1.65) million shares on October 31, 1993. Only (1,233,836) shares were subscribed. The earning per share raised from 0.02 in 1993 to 0.13 in 1994. The percentage of return on sales increased from 1.24 in 1993 to 10.81 in 1994. The financial performance of APCT is as follows.

The table 6.15 reveals that the net profit of the company has increased by 47.65 in 1995 in comparison with 1990 and 7.50 percent in comparison to previous year. The company earned highest profit in 1995 as lowest in 1982. There is an increasing trend of net profit.

Table 6.15**Financial Performance of APCT Co.**

(J.D. in lakhs)

Year	Net Profit/Loss	Percentage change in net profit/loss over previous year	Dividend	%age of dividend
1990	203.93	--	00	00
1991	22.42	89.00	00	00
1992	19.92	11.15	00	00
1993	20.24	1.60	00	00
1994	280.09	1283.84	233.38	83.32
1995	301.12	7.50	241.69	80.26

Source: Annual Report of APCT from 1990 to 1995.

The company has started declaring dividend since 1994. The rate of dividend was highest in 1994 that is 83.32 of net profit. The performance of the company highlights its sound financial health. This is due to increase in volume, improved productivity, effective reduction in cost.

E. Personnel Employed:

The number of manpower of this company is very small. It has not exceeded 100 workers because most of the work are done on modern machines. Among these employees, managerial and supervisory accounts, for 20, clerical 10, skilled 30, semi-skilled 5, unskilled 15 and casual and

daily 15. The company provide training to the different level of employees in some institution inside the country and abroad. Also the company provides financial incentives to the high performing workers.

Cost Accounting Practices in Arab Paper Converting and Trading (APCT)

APCT prepares cost sheet or statement of cost with its main elements; prime cost, work cost and cost of production. Cost sheet shows the output of a particular accounting period along with break-up of costs. The cost data for the purpose are collected from various statements of accounts.

The company divides cost on fixed and variable basis. The company does not use other basis like functional classification, direct and indirect cost or revenue and capital cost. Fixed and variable cost show how the total cost changes in relation to changes in activity of chosen cost objective which may be measured in units of product manufactured or sold. If the total cost remains unchanged for a given time period despite wide fluctuations in activity it is fixed. But if the cost varies in direct proportion to changes in the volume of output it is variable cost. Functional classification is based on grouping the cost according to the broad divisions or functions of a business undertaking. Direct and indirect cost basis depend on the ability of identification of the costs. A costs that can be easily identified and traced to any cost centre or product or group of products is considered as direct cost. Indirect cost represent that cost which

cannot be easily identified or traced with any cost centre, product or group of product.

Capital and revenue cost classification depend on the purpose of expenditure. A costs incurred to purchase assets either to earn income or to increase the earning capacity of the business is considered capital cost. *Revenue cost represents the cost incurred in maintaining the assets or running business.*

APCT is recording financial and cost transactions under the integrated cost accounting system. This contains a single book-keeping system.

It is revealed from the analysis that the company concentrates on absorption costing as a technique of costing. Under this technique most of fixed costs are allocated to cost units. The company does not use marginal costing as a technique of costing which classifies the costs into fixed and variable. Under marginal costing only variable costs are related to cost of the product. Also the company does not follow activity-based costing which focuses on activities as the fundamental cost objects.

APCT prepares material issue analysis sheet periodically which is an analysis of various requisitions, material returns notes and material transfer notes. Through this analysis sheet the value of material consumed is shown.

The analysis indicates that the company concentrates on ABC analysis as a technique of inventory control. The company does not follow

the other techniques of inventory control like, two bin card system or economic order quantity. ABC is based on itemizing total annual purchase cost of each item needed and grouping in decreasing order of annual consumption cost. Particular aspects of receipts and issues of materials are shown on the bin card system which help the store keeper to control the stock also.

The company treats the abnormal loss of material by charging it to cost of production. Abnormal loss of material arises due undesirable conditions i.e. theft, fire, careless handling.... etc.

The analysis shows that unit cost is used as a basis of overhead absorption. Overhead absorption means charging overheads to cost units through rate separately calculated for each cost unit or centres. The company does not use other basis like prime cost, labour cost, machine hour rate. Machine hour rate is the cost of running a machine per hour. Prime cost is the combination of direct material and direct labour costs.

The company concentrates on direct allocation method as a basis for allocation indirect costs to various departments. Under direct allocation method, the overheads or indirect costs are directly allocated on the basis of expenses of each department. The company does not follow other methods for allocation of direct cost like direct material consumed or machine hours worked.

It is clear from the data that the company APCT uses rate per unit as a basis of absorption the selling and distribution overheads. The

company does not use other basis like percentage on selling price of each unit or percentage on work cost. Selling overhead represent the expenses incurred from the time the products are in saleable state until they are sold and delivered. Distribution overhead consists of all expenses incurred from the time the product is completed in the factory until it reaches its destination.

Overtime wages is treated in this company by charging to factory overhead account. The company does not charge it to profit and loss account. Overtime is the work done beyond the normal work period.

The company treats idle time arising due to the non-availability of raw material by charging it to factory overhead account. The company does not charge it to profit and loss account. Idle time may be normal or abnormal. Normal idle time is when the wastage time can not be avoided. Abnormal idle time when the wastage time can be avoided, if proper precautions are taken.

APCT measures the labour productivity by comparing total output with total man hours. The company does not use other methods for measurement like comparing added value of the product with total wages cost or comparing actual time with standard time. All factory labour, both direct and indirect are included when labour productivity is calculated.

Average price method is used as a basis for pricing the input material. The company does not use the cost price of each lot or market price method. Average price Method considers the material should be issue

on the average cost of materials in store. But in case of cost price of each lot the material should be issued at the purchasing price and the material in the store should be identified as belonging to specific lots. Market price represents the replacement price or the realisable price.

APCT is belonging to public sector, the pricing policy is decided by the government after coordination with boards of the company. The pricing of the main products product is also decided by the government. But through the discussion the company concentrates more on full cost or absorption costing technique. The company does not support marginal costing technique.

APCT uses variance analysis for control purpose. The company calculates the variances related with material, labour and overhead. Standard costing is related to production area. The comparison of actual cost with standard cost is the major operative part in standard costing. Also the deviation between actual cost and variable cost is called variance. This variance may be favourable or unfavourable, and if the actual cost is more than standard cost it is unfavourable.

The company sets the standards on the basis of average of past performance. The company does not set standard on the idealistic or experimental basis. Standards set facilitate control and evaluate the performance of the enterprise.

The company calculates the variances related with material like material price, material quantity and material yield. The APCT sets the

standards of material on the basis of past records. The company does not use any scientific computation for setting standards.

The analysis indicates the company calculate the variances related with labour. These variances labour rate variance and labour mix variance. The company does not calculate idle time variance. Labour mix variance shows to the management how much of the labour cost variance is due to the change in composition of labour force. Labour rate variance reflect the difference between standard rate and actual rate. The company also set the standards of labour rate on the basis of normal operating conditions. The company does not consider the other basis like union contracts or past experience. The company concentrate on average of past performance as a basis for setting labour efficiency standards. The company does not make use of the time and motion study.

The company calculates overhead variances for capacity variances and efficiency variances. Capacity variance is used to assist under or over utilization of plant and equipment. Efficiency variance reflects the efficiency of workers and plant. The company sets the overhead rate standard on the basis of normal operating conditions. The company does not use past records or future trend of prices.

The company calculates sales variances related to sales volume and sales price. The company does not calculate sale mix variance. Sales mix is the relative combination of quantities of products that constitutes total sales.

The company considers the relative sales value method as a basis for differentiating joint costs and by-product costs. The company does not consider other basis like target profit. Joint cost represent the cost of a single process that yields multiple products. Joint costs are allocated on the basis of each product's relative sales value after the split off point. Split off point is the juncture in the process where from the products become separately identifiable.

APCT applies budgetary control technique. The company also prepares different type of budget like material budget, labour budget and overhead budget. All of these budgets are prepared on the basis of flexible budget. The period for revising and reviewing the estimates and predetermined amount every half year. The budgetary control system involves the establishment of quantitative targets, comparison of actuals with the targets and reporting the results of comparison. Flexible budget technique which is designed to change in accordance with the level of activity actually attained. The company does not prepare these on the basis of fixed budgeting system .

CHAPTER SEVEN

CONSOLIDATED ANALYSIS AND INTERPRETATION

- 7.1 Analysis and interpretation of cost accounting practices (CAP)
in fertiliser and chemical industry of India**
- 7.2 Analysis and interpretation of CAP in paper industry of India**
- 7.3 Analysis and interpretation of CAP in fertiliser and chemical
industry of Jordan**
- 7.4 Analysis and interpretation of CAP in paper industry of Jordan**

CONSOLIDATED ANALYSIS AND INTERPRETATION

7.1 Analysis and interpretation of cost accounting practices (CAP) in fertiliser and chemical industry of India

The cost accounting practice in the fertiliser industrial enterprises in India vary from sector to sector depending on the form of ownership, size of enterprise, nature of operation, nature of cost accounting system applied. Nevertheless, similarity of these practices in the companies of same industrial groups are present in many respect. So attempts have been made to scrutinize cost accounting practices (CAP) in fertilizer industry of India. This would provide some understanding about costing practices for making comparison between private sector and public sector fertilizer and chemical companies in India as well as to make comparative study of CAP with fertiliser and chemical industry of Jordan. This analysis and interpretation are limited to selected aspects of CAP of two fertiliser companies one belonging to private sector and the other to public sector.

7.1.1 Cost Sheet:

Cost sheet preparation is one of the main aspect of cost accounting practices. It is revealed from the analysis that both sectors private and public are preparing cost sheet. There is no fixed form for preparation of

cost sheet but in order to make it more useful it is generally presented in a columnar form. The information to be incorporated in cost sheet would depend on the requirement of management for the purpose of control. Cost sheet can be use to help in discloses the total cost and the cost per unit produced during the given period and enables the manufacturer to keep a close watch and control over the cost of production.

A number of elements are considered while preparing cost sheet which are given in table 7.1.

Table 7.1

Main Elements of Cost Sheet in IFI

		(In India Fertiliser Industry)	
S.No.	Main Elements	Response	
		Private Sector	Public Sector
1.	Prime Cost	Yes	Yes
2.	Factory cost	Yes	Yes
3.	Works cost	Yes	Yes
4.	Cost of Production	Yes	Yes

It is revealed from the analysis that both sectors private and public, consider and calculate the main elements for preparing cost sheet. Every one of these elements is depend on the other, this means that we can't reach the cost of production without to calculate prime cost, factory cost, work cost and we can not reach works cost without to know factory cost and prime cost.

7.1.2 Cost Keeping System and Cost Classification:

In cost accounting the cost books are basically maintained under two systems; either integrated cost accounting or non-integrated cost accounting system. But the companies under study in both sectors use integrated cost accounting system. Integrated cost accounting system are used to avoid duplication in recording accounting transactions, analysis is made easily, cost data can be obtained quickly, accounting procedures are simplified, no possibility of overlooking any expense co-ordination of functions of different sections of accounts department is possible. There is no need to reconcile the profit ascertained by the cost accounts with that of financial accounts.

Cost classification is required to arrive at the detailed costs of various jobs, processes or departments. Cost classification is based on grouping costs according to their common characteristics. A suitable classification of costs is of vital importance in order to identify the cost with cost centres or cost units. A number of basis are used for cost classification. These basis which are found in practice are based on cost characteristics such natural characteristics, change in activity or volume, relation and traceability to the product, cost analysis and decision making. The different basis used for cost classification have been outlined in table 7.2.

Table 7.2**Bases for Cost Classification in IFI****(In India Fertiliser Industry)**

S.No.	Main Bases	Response	
		Private Sector	Public Sector
1.	Fixed and variables	Yes	Yes
2.	Direct and indirect	Yes	No
3.	Capital and revenue	No	Yes
4.	Functional classification	No	No

The analysis indicates that both sectors private and public are similar in adopting fixed and variable cost basis for cost classification. But in the case of other basis the both sectors are different in selecting the basis. In private sector one more basis is selected which is called direct and indirect basis, but in public sector also one more basis is selected called capital and revenue. Private sector uses direct and indirect cost as a basis, to determine which cost can be easily traced to cost centre or cost units and which cost can not be easily traced. Capital and revenue is used by public sector only, through this the company can identify which cost incurred to increase the earning capacity or to maintain the earning capacity.

7.1.3 Costing Techniques:

To ascertain costs different methods and techniques are applied in fertiliser industry in India which depend upon the nature of the product, and

production method. It has been discovered that all the sampled companies used the same costing technique for all plants/units operating under them. Various techniques and methods which are used in fertiliser industry in India have been outlined in table 7.3.

Table 7.3
Costing Techniques Used in IFI
(In India Fertiliser Industry)

S.No.	Main Elements	Response	
		Private Sector	Public Sector
1.	Marginal Costing	No	No
2.	Absorption costing	Yes	Yes
3.	Activity-based costing	No	No

It is revealed from the analysis that all enterprises under study in both the sectors used absorption costing. Under this technique all manufacturing costs, fixed manufacturing expenses and variable are assigned recovered directly from the items produced.

7.1.4 Overhead Absorption and Allocation:

For overhead absorption and allocation suitable basis are adopted in Indian fertiliser industry which have been listed in the table 7.4.

Table 7.4**Cost Absorption and Allocation Bases Used in IFI****(In India Fertiliser Industry)**

S.No.	Main Basis	Response	
		Private Sector	Public Sector
1.	Factory overhead		
	- Machine hour basis	No	No
	- Material cost basis	No	No
	- Unit cost basis	Yes	Yes
	- Labour cost basis	No	No
	- Prime cost basis	No	No
2.	Indirect Cost allocation		
	- Direct allocation	Yes	No
	- Cost of material consumed	No	Yes
	- Machine hour worked	Yes	No
3.	Selling and Distribution Overhead		
	- Rate per unit	Yes	Yes
	- Percentage on work cost	No	No
	- Percentage on selling price unit	No	No

The analysis indicates that both sectors used the same basis for factory overhead, this basis is known estimated rate per unit. But in the case of indirect cost allocation to various departments, private sector used the direct allocation

method. Under this method the direct cost are directly allocated to various departments on the basis of expenses for each department respectively. Also public sector select another method called cost of material consumed. In the case of selling and distribution overheads absorption both sectors use the same method which known as estimated rate per unit. This method is useful for control purpose by separating the fixed expenses from variable expenses and treating every type of expenses separately.

7.1.5 Treatment of Some Items of Cost Aspects:

Different items of cost are treated in different ways and different sectors of fertiliser and chemical industry of India, depending upon the costing system applied. The different treatment of some items of cost have been outlined in table 7.5.

The table 7.5 reveals that there is some item of cost such overtime wagers and idle time are treated by the same way in private sector and public sector, except in public sector treated as a part of factory overhead. In case the overtime arises due to normal reason it is charge to cost of production of that period but if the overtime arises due to abnormal reason such as break down of machinery, failure of power, over time wages is excluded from the cost of production and is debited to the costing profit and loss account.

Table 7.5**Treatment of Some Items of Cost Aspects Applied in IFI****(In India Fertiliser Industry)**

S.No.	Different Treatment	Response	
		Private Sector	Public Sector
1.	Overtime Wages		
	- Profit and Loss account	Yes	Yes
	- Factory overhead	No	Yes
	- Inflating wage rate	No	No
	- Cost of Production	No	No
2.	Idle Time		
	- Profit and Loss Account	Yes	Yes
	- Factory overhead	No	No
	- Inflating wage rate	No	No
3.	Abnormal Loss of material		
	- Profit & Loss account	No	Yes
	- Cost of production	Yes	No
	- Factory overhead	No	No

In case of idle time due to non-availability of raw-material, both sectors private and public treat it in the same way. They charge this idle time to profit and loss account. The purpose behind this transfer to profit and loss account is to have a meaningful comparison of cost of production at different times by

keeping away abnormal wages from cost of production.

In case of abnormal loss of material the treatment is different between private sector and public sector. Private sector consider this loss as a part of cost of production. Public sector is consider this loss should be debited to profit and loss account. In public sector transferring this abnormal loss make the comparison of cost of production at different times more meaningful.

7.1.6 Inventory Control:

Inventory control techniques are applied in fertiliser and chemical industry in India, but these techniques differ from enterprise to enterprise depending on nature of industry, degree of control required for the enterprise. In all the companies under study, the different techniques used by them have been outlined in table 7.6.

It is revealed from the analysis that private sector and public sector use the same technique of inventory control. Both of them use ABC analysis technique but public sector use more technique called two-bin card system.

Material issue analysis sheet only by public sector use this technique for the purpose of conventionally ascertaining the cost of material issued for a job. Private sector not use this analysis sheet.

Table 7.6**Inventory Control Techniques in IFI**

S.No.	Main Elements	Response	
		Private Sector	Public Sector
1.	Inventory control techniques		
	- ABC	Yes	Yes
	- EOQ	No	No
	- Two Bin Card System	No	Yes
2.	Material Issue analysis sheet	No	Yes
3.	Input Material pricing		
	- Cost price of each lot	No	Yes
	- Market price	No	No
	- Average price	Yes	No

For the purpose of pricing input material private sector is used average price method and public sector is used cost price of each lot. Private sector consider the average price method because all the materials in store are so mixed up that an issue cannot be made from any particular lot of purchases and, therefore, it is proper if materials are issued at average price. Also this system maintains the issue prices as near to the market price as possible. But public sector prefers the cost price of each lot technique due to its simplicity in operation and it does not create accounting complications.

7.1.7 Budgetary Control:

Budgetary control means laying down the monetary and quantitative terms what exactly has to be done and how exactly it has to be done over a period and then to ensure that actual results don not diverge from the planned course more than necessary. Using budgetary control can help in avoiding the wastage and losses of all types and thus maximum efficiency is achieved. Also to measure efficiency of departments and people this method is applied.

Budgetary control techniques are used by all the companies under study in fertiliser and chemical industry in India. Various types of budgets are prepared. Different basis are used for preparation of these budgets which have been outlined in the table 7.7

The analysis indicates that both the sectors, use budgetary control technique. Both sectors also are prepare the same type of budgets. But private sector and public sector are different in the basis which they select in preparing these budgets. Public sector applies on flexible budget method and private sector is uses on fixed budget. In case of flexible budget public sector is revising flexible estimat monthly, private sector does not use flexible budget method and so there is no question of frequent revision.

Table 7.7**Budgetary Control Techniques Used in IFI**

S.No.	Main Elements	Response	
		Private Sector	Public Sector
1.	Budgetary control	Yes	Yes
2.	Types of Budget		
	- Material budget	Yes	Yes
	- Labour budget	Yes	Yes
	- Overhead budget	Yes	Yes
3.	Bases of Preparing Budget		
	- Flexible budget	No	Yes
	- Fixed budget	Yes	No
4.	Flexible Budget Revising		
	- Monthly	No	Yes
	- Quarterly	No	No
	- Half yearly	No	No

Both sectors they prepare material budget to determine the requirements of raw material for each job. Labour budget is prepared to determine how much time is needed of each type of worker to make a product. To determine the other expenses to be incurred during the budget period, overhead budget is prepared. Public sector is prepare all the types of budget on the basis of flexible budget method. This method help the company to be modified according to the change in output. Also flexible budget is helpful in assessing the

performance of departmental heads because their performance can be judged in relation to the level of activity .

7.1.8 Standard Setting:

The setting of standard is one of the main aspect of cost control. Any sort of loopholes in standard setting approach would hamper efficiency of the organisation. A successful standards should be attainable and reasonable. It reveals from the analysis that the enterprises under study are using different types of standards. which have been outlined in table 7.8.

Table 7.8
Standards Used and their bases in IFI

S.No.	Main Elements	Response	
		Private Sector	Public Sector
1.	Material standard		
	- Test run basis	No	No
	- Scientific computation	No	No
	- Past record basis	Yes	Yes
2.	Labour standards standard		
	- Normal operating conditions	Yes	No
	- Estimated rate	No	No
	- Union contracts	No	Yes
	- Past experience	Yes	No
3.	Overhead standards		
	- Past records	Yes	No
	- Future trend of prices	No	Yes
	- Normal operating conditions	Yes	No
4.	Labour efficiency standards		
	- Time and motion study	No	Yes
	- Past performance record	Yes	No

The analysis indicates that the companies sampled in fertiliser and chemical industry in India use the same basis for setting material standards. In the case of labour rate standards the private sector consider two basis, normal operating conditions and past experience, but public sector takes into account the union contract only for setting labour rate standards. Overhead standards are sett on the basis of past records and normal operating conditions in private and on the basis of future trend of prices in public sector. sector. Public sector uses time and motion study and private sector concentrate on past performance record as a basis for labour efficiency standard. In case of setting standards for raw material both sector consider past performance record. This will serve no purpose, unless past performance was excellent and this method of setting standards are fixed for each product or job in detail.

7.1.9 Variance Analysis:

The deviation of the actual cost from the standard cost is known as a variance. There are a number of causes which lead to a difference between the actual and standard. Variance analysis is applied in the companies under study and also different types of variances are used by them. The various variances which are considered by the companies under study have been outlined in table 7.9.

Table 7.9

Different Types of Variances Used in IFI

S.No.	Main Elements	Response	
		Private Sector	Public Sector
1.	Variances calculated for		
	- Raw material	Yes	Yes
	- Labour	Yes	Yes
	- Overhead	Yes	Yes
2.	Material Variances for		
	- Material price	Yes	Yes
	- Material quantity	Yes	Yes
	- Material yield	Yes	Yes
3.	Labour Variance for		
	- Labour rate variance	No	Yes
	- Idle time variance	No	No
	- Labour mix variance	Yes	No
4.	Overhead Variance for		
	- Capacity variance	Yes	Yes
	- Efficiency variance	Yes	Yes
	- Calendar variance	No	No
5.	Sales Variances for		
	- Sales volume	Yes	Yes
	- Sales mix	No	Yes
	- Sales price	No	No
6.	Variance Calculation Periodicity		
	- Monthly	Yes	No
	- Quarterly	No	Yes
	- Half yearly	No	No
	- Yearly	No	No

It is revealed from the table 7.9 that various variances are used in public sector and private sector. Both sectors setting calculate variances related for raw material, labour and overhead. In case of variances related for raw material, both sectors, calculate the same types of variances. For labour variances public sector concentrates on labour rate variance and private sector concentrates on labour mix variance. Variances related for overhead, both sectors calculate the same types. Both sectors stress on capacity variance and efficiency variance. In case of variances related for sales private sector concentrates on sales volume. Public sector concentrates on sales volume and sales mix. The period of calculation of different variances are different from sector to sector. In private sector is monthly and in public sector is quarterly.

Analysis of variances is helpful in controlling the performance and achieving the profits as per plan. Variances of different items of cost provide the key to cost control because they disclose whether and to what extent standards set have been achieved. There are a number of reasons which give rise to variances and the analysis of variances helps in locating the reason and person or department responsible for a particular variance.

7.2. ANALYSIS AND INTERPRETATION OF COST ACCOUNTING PRACTICES (CAP) IN PAPER INDUSTRY OF INDIA

The cost accounting practices in the paper manufacturing

companies in India vary from enterprise to enterprise and from sector to sector depending on the form of ownership, size of enterprise, nature of operation. Nevertheless, similarity of these practices also exist which have been analysed in the following discussion.

7.2.1 Cost Sheet:

Cost ascertainment is an important function of cost accounting. For this purpose, a cost sheet or a statement of cost is prepared. This statement gives a the break-up of the total cost into various segments. It is revealed from the analysis that both sectors private and public sector are preparing cost sheet. Main elements of cost sheet and their application are depicted in table 7.10.

Table 7.10

Main Elements for Cost Sheet in Indian Paper Industry (IPI)

S.No.	Main Elements	Response	
		Private Sector	Public Sector
1.	Prime Cost	Yes	Yes
2.	Factory cost	Yes	Yes
3.	Works cost	Yes	Yes
4.	Cost of Production	Yes	Yes

A number of elements have been considered for preparing cost sheet. The break-up of cost is similar in both private and public sector

paper industry in India.

7.2.2 Cost Books Keeping System and Cost Classification:

The accounting system to be employed in a particular concern depends upon the requirements of the business and the information required. Basically there are two systems of accounting to keep cost books viz. (i) non-integrated cost or cost ledger accounting, and (ii) integral or integrated accounting. The companies under study in both sectors, they use integrated cost accounting system. This avoids duplication in recording accounting transactions, analysis is made easy, cost data are obtained quickly, accounting procedures are simplified, no possibility of overlooking any expenses under the system, no need to reconcile the profit ascertained by cost accounts with that of financial accounts. Cost classification is based on grouping costs according to their common characteristics, a suitable classification of costs is of vital importance in order to identify the cost with cost centres or cost units. The different bases used for cost classification have been outlined in table 7.11.

The analysis indicates that both sectors differ in the basis used for cost classification. Private sector uses functional classification and public sector emphasises on fixed and variable costs.

Table 7.11

Cost Classification Bases Applied in IPI

S.No.	Main Bases	Response	
		Private Sector	Public Sector
1.	Fixed and variables	No	Yes
2.	Direct and indirect	No	No
3.	Capital and revenue	No	No
4.	Functional classification	Yes	No

Functional classification leads to grouping of cost according to the broad divisions or functions of a business undertaking. Therefore, the cost can be easily identified to particular product of centres. Fixed and variable bases help to identify that which cost effect in activity or volume change. Under this bases cost are classified according to their behaviour in relation to changes in level of activity.

7.2.3 Costing Techniques:

A cost accounting system should be so designed that it would be able to provide the necessary information for achieving control of cost and performance. Different methods and techniques which are applied in Indian paper industry have been outlined in table 7.12.

Table 7.12**Costing Techniques Used in IPI**

S.No.	Techniques	Response	
		Private Sector	Public Sector
1.	Marginal costing	No	No
2.	Absorption costing	Yes	Yes
3.	Activity-based costing	No	No

It is revealed from the analysis that all the enterprises under study in both the sectors use absorption costing technique. Under this technique all costs fixed and variable are charged to product. Absorption costing is used because it determines the real cost of the product. It highlights gross profit also.

4.2.4 Overhead Absorption and Allocation:

For charging overhead expenses to different cost centres, an overhead analysis cost is prepared. Allocation is the charging of whole items of cost to suitable and identifiable cost centres or cost unit. A number of methods and bases are used for cost allocation and absorption which have been outlined in table 7.13

Table 7.13**Cost Absorption and Allocation Bases Used in IPI**

S.No.	Bases and Method	Response	
		Private Sector	Public Sector
1.	Factory overhead		
	- Machine hour basis	Yes	No
	- Material cost basis	No	No
	- Unit cost basis	No	Yes
	- Labour cost basis	No	No
	- Prime cost basis	No	No
2.	Indirect Cost allocation		
	- Direct allocation	No	No
	- Cost of material consumed	No	Yes
	- Machine hour worked	No	No
3.	Selling and Distribution Overhead		
	- Rate per unit	Yes	No
	- Percentage on work cost	Yes	No
	- Percentage on selling price unit	Yes	Yes

The analysis reveals that both sectors differ in the basis used in factory overhead absorption. Private sector uses machine hour basis and public sector uses unit cost.

In case of allocation of indirect cost to various department, both

sectors use the same method known as cost of material consumed. Also in case of absorption of selling and distribution overhead, both sectors use percentage on selling price of each unit. Private sector also uses another bases like; rate per unit and percentage on work cost.

Machine hour basis is used by private sector for factory overhead absorption, because this method helps compare the relative efficiencies and cost of operating different machine. Unit cost basis is used by public sector. This method is simple and is proper where the output is measured in convenient physical units like number, weight, volume etc.

Both sectors use direct material consumed method for allocation of indirect cost to various departments. Under this method the calculation of overhead rate is simple as the cost of direct materials is easily available.

7.2.5 Treatment of Some Items of Cost Aspects:

Different items of cost are treated in different way and sometimes we can find the same items of cost are also treated differentially. This depend on the nature of industry. The various treatment of some items have been given in table 7.14.

The table 7.14 reveals that both sectors are treating overtime wages in the same way i.e. by charging to profit and loss account because they use overtime only when there is abnormal reasons. Therefore, according to cost accounting principle when overtime arises due to abnormal reasons, it is excluded from the cost of production and is debited to profit and loss account.

Table 7.14**Treatment of Some Items of Cost in IPI**

S.No.	Different Treatment	Response	
		Private Sector	Public Sector
1.	Overtime Wages		
	- Profit and Loss account	Yes	Yes
	- Factory overhead	No	No
	- Inflating wage rate	No	No
	- Cost of Production	No	No
2.	Idle Time		
	- Profit and Loss Account	Yes	No
	- Factory overhead	No	Yes
	- Inflating wage rate	No	No
3.	Abnormal Loss of material		
	- Profit & Loss account	No	Yes
	- Cost of production	Yes	No
	- Factory overhead	No	No

In case of treating idle time, private sector treats it to profit and loss account and public sector treats it to factory overhead account.

As for costing principle all abnormal expenses and losses should not be included in the costs and as such wages paid for abnormal idle time should also not form part of the cost of production. The wages paid for abnormal idle time

should be debited to profit and loss account. The logic behind this is to have meaningful comparison of cost of production at different times by keeping away abnormal wages from cost of production.

Abnormal loss of material are treated to profit and loss account in public sector. This treatment gives meaningful comparison of cost of production at different times by keeping away abnormal wages from cost of production.

7.2.6 Inventory Control:

Inventory control system involves the recording and monitoring of various stock levels, for casting future demands and deciding when and how much quantity to order. Inventory control technique are used in paper industry in India, but these techniques differ from enterprise to enterprise. All the companies under study apply inventory control techniques. Different aspects of inventory control have been outlined in table 7.15.

It is revealed from the table 7.15 that both sectors differ in inventory control technique. Private sector applies EOQ where the public sector does not use it. ABC analysis is used by public sector and the two bin system is not applied in any sector.

Private sector use cost price of each lot method for pricing input material and public sector use market price method for pricing input material.

Material issue analysis sheet is used to ascertain the value of material consumed. This analysis sheet is used by both sectors.

technique is used by both companies under study in paper industry of India. Various types of budgets are prepared, different basis are used for preparation of these budgets. All these types and basis have been outlined in table 7.16.

Table 7.16

Budgetary Control Techniques Used in IPI

S.No.	Different Types of Budgets	Response	
		Private Sector	Public Sector
1.	Budgetary control	Yes	Yes
2.	Types of Budget		
	- Material budget	Yes	Yes
	- Labour budget	Yes	Yes
	- Overhead budget	Yes	Yes
3.	Bases of Preparing Budget		
	- Flexible budget	Yes	Yes
	- Fixed budget	No	No
4.	Flexible Budget Revision		
	- Monthly	No	Yes
	- Quarterly	Yes	No
	- Half yearly	No	No

The private sector company and public sector companies use the same basis for preparing the budgets. But in case of revising period of

Table 7.15**Inventory Control Techniques in IPI**

S.No.	Main Elements	Response	
		Private Sector	Public Sector
1.	Inventory control techniques		
	- ABC	No	Yes
	- EOQ	Yes	No
	- Two Bin Card System	No	No
2.	Material Issue analysis sheet	Yes	Yes
3.	Input Material pricing		
	- Cost price of each lot	Yes	No
	- Market price	No	Yes
	- Average price	No	No

For the purpose of pricing input material, private sector uses cost price of each lot method. This method is simple in its mechanism and operation. Also this method does not create accounting complication.

7.2.7 Budgeting Control:

Budgeting is a method of planning, and provides a detailed plan of action for business and its sub-divisions. The truth is that budgets transform company-wide goals into specific tasks to be performed by operating managers. Also budgeting acts as the most effective mechanism for monitoring and controlling costs. Budgetary control

flexible budget, private sector revision period is quarterly and public sector is monthly.

Budgetary control is helpful as a method of planning and it is a systematic means for formulating and coordinating plants of many individuals and departments. Also it is considered to be the most effective mechanism for monitoring and controlling costs. Both sectors use the flexible budget method. This method is helpful for adjustment in the plan. It also helps to identify how and to what extent each item of expense in a responsibility centre is influenced by the amount of work done in that centre.

7.2.8 Standard Setting:

The setting up of standards is one of the main factor of cost control. Any sort of loopholes in setting standards would hamper efficiency of the organisation. A successful standards should be attainable and reasonable. It reveals from the analysis that the enterprises under study are using different types of standards. The table 7.26 outlines different standards and different basis for setting these standards.

From the table 7.17 it is clear that both sectors are differ on the basis for setting material standards private sector consider past record basis and public sector consider test run basis. Both sectors use the union contracts for setting labour standard. Also both sectors use the same bases for overhead standard and labour efficiency standards.

Table 7.17**Various Standards Used in IPI**

S.No.	Main Elements	Response	
		Private Sector	Public Sector
1.	Material standards		
	- Test run basis	No	Yes
	- Scientific computation	No	No
	- Past record basis	Yes	No
2.	Labour Standards		
	- Normal operating conditions	No	No
	- Estimate rate	No	No
	- Union contracts	Yes	Yes
	- Past experience	No	No
3.	Overhead Standards		
	- Past records	Yes	Yes
	- Future trends of prices	No	No
	- Normal operating conditions	No	No
4.	Labour Efficiency Standards		
	- Time and motion study	No	No
	- Past performance records	Yes	Yes

All standards attempt to monitor costs and measure efficiency. The main purpose of standard costing is to provide basis for control through variance accounting. As such standard costs confer several

benefits to the organisation like simplification of cost calculations and record keeping, decision making and integration of accounts.

7.2.9. Variance Analysis:

The variance analysed used in the sampled company under study and they have been outlined in table 7.18.

Table 7.18

Different Types of Variances used in IPI

S.No.	Main Elements	Response	
		Private Sector	Public Sector
1.	Variances calculated for		
	- Raw material	Yes	Yes
	- Labour cost	Yes	Yes
	- Overhead	Yes	Yes
2.	Material Variances for		
	- Material price	Yes	No
	- Material quantity	Yes	No
	- Material yield	Yes	Yes
3.	Labour Variance for		
	- Labour rate variance	Yes	No
	- Idle time variance	Yes	No
	- Labour mix variance	No	Yes
4.	Overhead Variance for		
	- Capacity variance	Yes	No
	- Efficiency variance	Yes	Yes
	- Calendar variance	No	No
5.	Sales Variances for		
	- Sales volume	Yes	Yes
	- Sales mix	Yes	No
	- Sales price	Yes	No
6.	Variances Calculation Periodicity		
	- Monthly	No	Yes
	- Quarterly	No	No
	- Half yearly	No	No
	- Yearly	Yes	No

The analysis indicates that, both sectors private and public calculate variances for raw material, labour and overhead. For material variances, material yield variances is calculated in both sectors. Material price and material quantity are calculated only by private sector. Private sector calculates labour variance for labour rate and idle time. But public sector calculates labour variance only for labour mix variance. In case of overhead variance, both sectors are calculate efficiency variance. Capacity variances are calculated only by private sector. Sales volume variance is calculated by both sectors private and public, while sales mix variance is calculated only by private sector. Variance calculation period in private sector is yearly and in public sector monthly.

Variance is an information which help the top management indicating the overall efficiency of the organisation compared with the standard and provide a means of control and evaluation.

7.3 ANALYSIS AND INTERPRETATION OF COST ACCOUNTING PRACTICES (CAP) IN FERTILISER AND CHEMICAL INDUSTRY OF JORDAN

The cost accounting practices in the fertiliser and chemical industrial enterprises in Jordan vary from enterprise to enterprise and from sector to sector. similarities in practices in these companies are present. An attempts has been made to investigate cost accounting practices (CAP) in fertiliser and chemical industry of Jordan in the following aspects of CAP.

7.3.1 Cost Sheet:

It is one of the main statements designed to show the output of a particular accounting period alongwith break-up of costs. It is reveals from the analysis that both sectors private and public are preparing cost sheet. The information derived from the financial account is set out usually in the form of cost statement. A number of elements should be calculated while preparing cost sheet. These elements have been outlined in table 7.19.

It is reveals from the analysis that both sectors private and public are calculate the main factors for preparing cost sheet. Calculation of every one of them depend on the calculation of other element. Cost sheet is helpful in disclosing the total cost and the cost per unit of the units produced during the given period.

Table 7.19

**Main Elements for Cost Sheet in Jordan Fertiliser and
Chemical Industry (JFI)**

S.No.	Main Elements	Response	
		Private Sector	Public Sector
1.	Prime Cost	Yes	Yes
2.	Factory cost	Yes	Yes
3.	Works cost	Yes	Yes
4.	Cost of Production	Yes	Yes

Cost sheet enables a manufacturer to keep a close watch and control

over the cost of production. It helps in fixing up the selling price more accurately. It also helps the businessman to minimise the cost of production when there is acute competition.

7.3.2 Cost Books Keeping System and Cost Classification:

In cost accounting the cost books are basically maintained under either integrated cost accounting or non-integrated cost accounting system. The companies under study used both systems of keeping cost books. Private sector uses integrated cost system but public sector consider non-integrated cost system.

Integrated cost accounting prepared from the information recorded in the cost accounts, and it is simple and economical, and there is no possibility of overlooking any expense under the system.

Where cost and financial transactions are kept separate, the system is called non-integral or cost ledger accounting. The transactions are entered in both systems on the basis of double entry book-keeping - every debit must have a corresponding credit. In large concerns where accounts are numerous, subsidiary ledgers such as stores ledger, work-in-progress ledger, finished goods ledger are to be employed. Such a system of keeping books helps the management in policy formulation as this ledger summarises all detailed information regarding cost in subsidiary records. It provides the basis for analysis of cost and preparation of accounts for each cost centre for cost ascertainment and control.

Cost classification is one of the main aspect of cost accounting

practices. It is required to arrive at the detailed costs of various jobs, processes and departments. It is the process of grouping costs, according to their common characteristics. A number of basis are used for cost classification. These basis which found in practices have been outlined in table 7.20.

Table 7.20

Cost Classification Basis Applied in JFI

S.No.	Various Bases	Response	
		Private Sector	Public Sector
1.	Fixed and variable cost	No	Yes
2.	Direct and indirect cost	Yes	Yes
3.	Capital and revenue cost	No	No
4.	Functional classification	No	No

The analysis indicates that both sectors use the same basis direct and indirect for cost classification. Public sector also use another basis fixed and variable. The importance of distinction of costs into direct and indirect lies in the fact that direct costs of a product or activity can be accurately determined while in direct costs have to be apportioned on certain assumptions.

7.33 Costing Technique:

Different methods and techniques are applied in Jordan fertiliser and chemical industry. It has been discovered that the sampled company under

study are using the same costing technique for all plants/units operating under them. Various techniques and methods which are used in fertiliser and chemical industry in Jordan have been outlined in table 7.21.

Table 7.21

Costing Techniques Used in JFI

S.No.	Techniques	Response	
		Private Sector	Public Sector
1.	Marginal costing	No	No
2.	Absorption costing	Yes	Yes
3.	Activity-based costing	No	No

It is revealed from the analysis that all the enterprises under study from both sectors use the same costing technique. Under this technique all costs fixed and variable are charged to operations, processes or products helps determine the real cost of the product and make clear distinction between the period costs and product costs.

7.3.4 Overhead Absorption and Allocation:

Allocation is the process of identification of overheads with cost centres. It is the allotment of whole item of cost to cost centres or cost units or refers to the charging of expenses which can be identified wholly with a particular department. Absorption actually means the distribution of the overhead expenses allotted to a particular department over the units produced in that department. Overhead absorption is accomplished by overhead rates. A number of methods and basis are used for cost

absorption and allocation. These basis and methods have been outlined in table 7.22.

Table 7.22

Cost Allocation and Absorption Basis Used in JFI

S.No.	Bases and Methods	Response	
		Private Sector	Public Sector
1.	Factory overhead		
	- Machine hour basis	No	Yes
	- Material cost basis	No	No
	- Unit cost basis	No	No
	- Labour cost basis	No	Yes
	- Prime cost basis	Yes	No
2.	Indirect Cost allocation		
	- Direct allocation	No	Yes
	- Cost of material consumed	Yes	No
	- Machine hour worked	No	No
3.	Selling and Distribution Overhead		
	- Rate per unit	Yes	No
	- Percentage on work cost	No	No
	- Percentage on selling price unit	No	Yes

The analysis revealed that both sectors differ totally in selecting basis for different cost allocation. Private sector consider prime cost basis for factory

overhead absorption, but public sector consider machine hour basis and labour cost basis for overhead absorption.

In case of allocation of indirect cost to various departments private sector highlight on cost of material consumed and public sector consider direct allocation method for allocation of indirect cost to various department.

For the purpose of absorption of selling and distribution overheads, private sector is used rate per unit basis and public sector used percentage on selling price of each unit.

Prime cost is selected as a basis for factory overhead absorption by private sector. This method is simple and easy to operate and the data required for computation of this rate is easily available from the records. But public sector select machine hour basis. Machine hour rate method helps to compare the relative efficiencies and cost of operating different machines. It brings to light the existence and extent of idle time of machine. Labour cost which also selected by public sector as a basis for absorption factory overhead helps, in giving automatic consideration to the time factor, easily calculation of the labour cost rates is possible.

In case of allocation of indirect cost to various departments public sector considers direct allocation method. Private sector consider direct material consumed for allocation of indirect cost. This method is simple and more suitable when prices of the material are fairly stable and also where the proportion of overhead to the total cost is significant.

Rate per unit is considered as a basis for absorption selling and

distribution overheads because it helps for control purposes . Private sector prefers the percentage on selling price of each unit as a basis of absorption of selling and distribution overheads.

7.3.5. Treatment of Some Items of Cost Aspects:

Different items of cost are treated in different ways. It depends on the nature of industry and the type of costing system applied. The various treatment of some items of cost have been outlined in table 7.23

Table 7.23

Treatment of Some Items of Cost JFI

S.No.	Different Treatment	Response	
		Private Sector	Public Sector
1.	Overtime Wages		
	- Profit and Loss account	No	No
	- Factory overhead	Yes	Yes
	- Inflating wage rate	No	No
	- Cost of Production	No	No
2.	Idle Time		
	- Profit and Loss Account	No	No
	- Factory overhead	Yes	Yes
	- Inflating wage rate	No	No
3.	Abnormal Loss of material		
	- Profit & Loss account	No	No
	- Cost of production	Yes	Yes
	- Factory overhead	No	No

The table 7.23 reveals that both sectors, private and public are treating the various in the same way. Both sectors charging overtime wages and idle time to factory overhead account. Both sectors charge abnormal loss of material to cost of production account.

Abnormal loss of material is treated in the same way to cost of production but abnormal loss should transfer to profit and loss account to make the comparison of cost of production at different times more meaningful.

7.3.6. Inventory Control:

No system of costing can be considered as complete without proper control of materials as materials constitute a major portion of cost of production. The main objective of inventory control is the availability of materials, no excessive investment in materials, reasonable price, minimum wastage. Inventory control techniques are used in fertiliser and chemical industry in Jordan, but these techniques differ from enterprise to enterprise depending on the degree of control required for the enterprise. In all the companies under study, inventory control technique are used. Different techniques have been outlined in table 7.24.

It is revealed from the analysis that private sector and public sector are different in the technique used for inventory control. Private sector is used ABC technique and public sector consider perpetual inventory system.

Table 7.24**Inventory Control Techniques in JFI**

S.No.	Main Elements	Response	
		Private Sector	Public Sector
1.	Inventory control techniques		
	- ABC	Yes	No
	- EOQ	No	No
	- Two Bin Card System	No	No
	- Perpetual Inventory System	No	Yes
2.	Material Issue analysis sheet	Yes	Yes
3.	Input Material pricing		
	- Cost price of each lot	Yes	No
	- Market price	No	No
	- Average price	No	Yes

Both sectors used material issue analysis sheet. In case of pricing of input material, private sector highlights on cost price of each method and public sector concentrate on average.

Private sector is prefer ABC analysis technique for inventory control, because this method measures the cost significance of each item of material. A strict control is exercised on the items which represent a high percentage of the material costs, investment inventory is reduced to the minimum possible level because close control of A items contributes much more than close control

of C items.

Public sector is highlight on perpetual inventory system because this system obviates the necessity for the physical checking of all items of stores at the end of the year and thereby avoids dislocation of production, it helps to prepare periodical profit and loss account and balance sheet without physical inventory being taken, detailed and more reliable check on the store is obtained, errors and shortage of stock are readily discovered, the figures are more reliable, help to keep the records accurate and up-to-date.

Both sectors they use material issue analysis sheet to show the cost of material issued for a production at a given period of time.

Cost price of each lot is the method used by private sector for pricing the input material. This method is simple in its mechanism and operation, this method does not create accounting complications. Public sector consider average price method due to this method all the materials in store are so mixed up than an issue cannot be made from any particular lot of purchase. This method also maintains the issue prices as near to the market price as possible.

7.3.7 Budgetary Control:

The budgetary system just as any other control system involves the establishment of quantitative targets, comparison of actuals with the targets and reportig the results of comparison. Budgetary control creates a sense of awareness at all levels of management in the process of fulfilment of targets. Budgetary control techniques are used by the companies under study in fertiliser and chemical industry in Jordan. Various types of budgets are prepared,

different basis are used for preparation of these budgets. Various types of budgets and different basis for preparing these budgets have been outlined in table 7.25. The analysis indicates that both sectors in Jordan fertiliser and chemical industry, use budgetary control techniques and both of them prepare the same types of budgets. Also both of the sector use the same basis for budget preparation. But both sectors are different in the period of revision, private does it every month and public sector every half year.

Table 7.25

Budgetary Control Techniques Used in JFI

S.No.	Main Elements	Response	
		Private Sector	Public Sector
1.	Budgetary control	Yes	Yes
2.	Types of Budget		
	- Material budget	Yes	Yes
	- Labour budget	Yes	Yes
	- Overhead budget	Yes	Yes
3.	Bases of Preparing Budget		
	- Flexible budget	Yes	Yes
	- Fixed budget	No	No
4.	Flexible Budget Revising		
	- Monthly	Yes	No
	- Quarterly	No	No
	- Half yearly	No	Yes

Both sectors use budgetary control technique, because the budgeting leads to maximum utilisation of resources with a view to ensuring return, it creates a sense of awareness at all levels of management in the process of fulfilment of targets, it leads to better coordination and hence understanding between different functions.

Both sectors prepare the same type of budgets for raw material, labour and overheads. Raw material budget determine the quantity of raw material require. Labour budget is prepared to determine how much time is needed for each type of work to make a product. Overhead budget is prepared to determine the other expenses to be incurred during the budget period.

Both sectors consider flexible budget. Under this it is specifically identify how and to what extent, each item if expense in a responsibility centre is influenced by the amount of work done in that centre. It also provide adjusted budget allowances for comparison purposes (against actual expenses) in the monthly performance report.

7.3.8. Standard Setting:

To determine standards which are at once practicable and represent efficient performance, the management will have to be fully aware of all the facilities that are available. Standard costing involves not only determining quantity standards but also standards in respect of price and rates. Various standards used in JFI have been outlined in table 7.26.

Table 7.26**Various Standards Used in JFI**

S.No.	Various Standard Settings	Response	
		Private Sector	Public Sector
1.	Material standard		
	- Test run basis	No	No
	- Scientific computation	Yes	No
	- Past record basis	No	Yes
2.	Labour standards		
	- Normal operating conditions	Yes	No
	- Estimated rate	No	No
	- Union contracts	No	Yes
	- Past experience	Yes	No
3.	Overhead standards		
	- Past records	No	Yes
	- Future trend of prices	No	Yes
	- Normal operating conditions	Yes	Yes
4.	Labour efficiency standards		
	- Time and motion study	No	No
	- Past performance record	Yes	Yes

The analysis indicates that the both sector select different basis for setting the material standards. Private sector is considered scientific computation as a basis for setting material standards and public sector

concentrate on past record basis.

In the case of labour standard setting, private sector considers normal operating conditions and past experience whereas public sector considers union contracts. For setting overhead standards private sector concentrates on normal operating conditions. But public sector considers three basis, such as past records, future trends of prices and normal operating conditions for the same purpose. Both sectors use past performance records for setting labour efficiency standards.

Standard cost are fixed for each product or job. The success of standard costing depends upon the establishment of correct standards. To use normal operating conditions as a basis for setting standards, this will present the real situation of operating conditions and help in getting realistic standards.

7.3.9 Variance Analysis:

A variance or cost variance is the difference between the standard (or budgeted) cost and the comparable actual cost for a particular period. In situations where actual costs exceed standard costs or vice-versa, the difference are shown as variance. Different type of variance analysis is applied in the companies under study. The various variances used in the sampled company under study have been outlined in table 7.27.

Table 7.27

Different types of variances Used in JFI

S.No.	Various Variances used	Response	
		Private Sector	Public Sector
1.	Variances calculated for		
	- Raw material	Yes	Yes
	- Labour	Yes	Yes
	- Overhead	Yes	Yes
2.	Material Variances for		
	- Material price	Yes	Yes
	- Material quantity	Yes	Yes
	- Material yield	Yes	Yes
3.	Labour Variance for		
	- Labour rate variance	Yes	Yes
	- Idle tiem variance	Yes	No
	- Labour mix variance	Yes	Yes
4.	Overhead Variance for		
	- Capacity variance	Yes	Yes
	- Efficiency variance	Yes	No
	- Calendar variance	No	No
5.	Sales Variances for		
	- Sales volume	Yes	Yes
	- Sales mix	Yes	No
	- Sales price	No	No
6.	Variances Calculation		
	Periodicity		
	- Monthly	No	No
	- Quarterly	No	Yes
	- Half yearly	Yes	No
	- Yearly	No	No

It is revealed from the table 7.27 that various variances are used in public sector and private sector. Both sectors calculate the different variances for raw material, labour, overhead.

Private sector and public sector calculates the same variances related to raw material and labour except in case of idle time variance which is used private sector and not by public sector.

Both sectors are different in the types of variances calculated for overhead. Private sector consider capacity variance and efficiency variance but public sector concentrates on capacity variance only.

Two types of sales variances are used in private sector as sales volume, and sales mix but in public sector only sales volume is taken into account.

In case of the period of variance calculation, private sector calculates the variances half-yearly basis and public sector quarterly.

Variance analysis provides a means of evaluation and control. Variances indicate the overall efficiency of the organisation compared with the standard. They also show the trend in progress of the organisation. Variances bring to surface the elements of performance which require attention. Also variance factors can be used for application to standard costs in order to arrive at current actual costs.

7.4 ANALYSIS AND INTERPRETATION OF COST ACCOUNTING PRACTICES (CAP) RELATING TO PAPER INDUSTRY IN JORDAN (PIJ):

The cost accounting practices in the paper industry in Jordan vary from enterprise to enterprise and from sector to sector depending upon the size of the enterprise, nature of operation. At the same time similarity of these practices in the companies of same industrial groups present also exists in many respect. An attempts has been made to scrutinize these aspects in the paper industry of Jordan.

7.4.1. Cost Sheet:

The companies describes facts about the cost of products, by preparing cost sheet. Cost sheet is a statement drawn to give the detailed information about the cost of product. Any mistake in preparing this cost sheet would effect the reliability of the cost information and on the decision making process. It is reveals from the analysis that the cost sheet is applied in both sectors. A number of elements that are necessary for preparing the cost sheet have been outlined in table 7.28.

Table 7.28

Cost sheet Elements Used in PIJ

S.No.	Main Elements	Response	
		Private Sector	Public Sector
1.	Prime Cost	Yes	Yes
2	Factory cost	Yes	Yes
3.	Works cost	Yes	Yes
4.	Cost of Production	Yes	Yes

It is revealed from the table 7.28 that elements like; prime cost, factory cost, work cost and cost of production are considered by both companies.

7.4.2. Cost Keeping System And Cost Classification:

For cost accounting the cost books are basically maintained either on integrated cost accounting system or non-integrated one. The companies in paper industry in Jordan use integrated cost accounting system which is useful in solving duplication of recording. This system is simple, economical, automatic check on the correctness of the cost data.

Cost classification mean that cost items are analysed or grouped according to their common characteristics variable and semi-variable costs, jobs or processes leading to direct and indirect costs or to production, selling and distribution. The different basis used for cost classification in public and private sector paper industry in Jordan have been outlined in table 7.29.

Table 7.29

Various Bases Used for Cost Classification in PIJ

S.No.	Main Elements	Response	
		Private Sector	Public Sector
1.	Fixed and variables	Yes	Yes
2.	Direct and indirect	No	No
3.	Capital and revenue	No	No
4.	Functional classification	No	No

The analysis indicates that both sectors, private and public use the same basis for cost classification. It helps to determining which cost change, pm the level of activity change and which is not change.

7.4.3. Costing Techniques:

To ascertain costs different methods and techniques are applied in paper industry in Jordan. All the sampled companies use same costing technique for all plants/units operating under them. Various techniques which are used in paper industry in Jordan have been outlined in table 7.30.

Table 7.30

Costing Techniques Used in PIJ

S.No.	Main Elements	Response	
		Private Sector	Public Sector
1.	Marginal Costing	No	No
2.	Absorption costing	Yes	Yes
3.	Activity-based costing	No	No

It is revealed that all the companies under study in both sectors private and public, use the same costing technique which know absorption costing technique where all manufacturing costs are absorbed as product cost.

7.4.4. Cost Allocation and Absorption:

Cost allocation refer to charging whole item of cost to cost centres or

cost units. Suitable basis are to be used for allocation and absorption the overhead expenses which have been identified and listed in table 7.31.

Table 7.31

Cost Absorption and Allocation Bases Used in PIJ

S.No.	Main Elements	Response	
		Private Sector	Public Sector
1.	Factory overhead		
	- Machine hour basis	No	No
	- Material cost basis	No	No
	- Unit cost basis	Yes	Yes
	- Labour cost basis	No	No
	- Prime cost basis	No	No
2.	Indirect Cost allocation		
	- Direct allocation	Yes	Yes
	- Cost of material consumed	No	No
	- Machine hour worked	No	No
3.	Selling and Distribution Overhead		
	- Rate per unit	Yes	Yes
	- Percentage on work cost	No	No
	- Percentage on selling price unit	No	No

From the table it is clear that both sectors private and public use the same technique and method for factory overhead, indirect cost allocation and

selling and distribution overheads.

Both sector they use unit cost as a basis for factory overhead absorption, direct allocation for indirect cost and rate per unit for absorption selling and distribution overheads.

Unit cost a basis for factory overhead absorption is used by both sectors. Direct allocation method for allocation indirect cost to various department is used by both sectors. Under this method overheads are directly allocated to various departments on the basis of expenses of each department respectively.

7.4.5. Treatment of certain items of cost aspects:

Different items of cost aspects are treated in different ways. Sometimes the same item is treating in different ways in different enterprises. This depend on the nature of industry, size of the company, nature of the cost items itself. Different treatment of some aspects of cost have been outlined in table 7.32.

The table-7.32 indicates that both sectors are similar in treating overtime wages and idle time. But they are differ in treating abnormal loss of material.

Both sectors they charge overtime wages and idle time to factory overhead account which is finally transfered to cost of production account. If the overtime and idle time arise due to normal conditions, it should charge to cost of production, but if it arise due to abnormal reasons it is charged to profit and loss account.

Table 7.32**Treatment of Some Items of Cost Aspects Applied in PIJ**

S.No.	Treatment of some aspects	Response	
		Private Sector	Public Sector
1.	Overtime Wages		
	- Profit and Loss account	No	No
	- Factory overhead	Yes	Yes
	- Inflating wage rate	No	No
	- Cost of Production	No	No
2.	Idle Time		
	- Profit and Loss Account	No	No
	- Factory overhead	Yes	Yes
	- Inflating wage rate	No	No
3.	Abnormal Loss of material		
	- Profit & Loss account	No	Yes
	- Cost of production	Yes	No
	- Factory overhead	No	No

According to cost principles all abnormal losses should charge to profit and loss account which the public sector is doing.

7.4.6. Inventory control:

Inventory is one of the largest current assets for this and other reasons, inventory control is essentially for business success. From a

cost stand point, control of inventory control is necessary. Different techniques of inventory control have been outlined in table 7.33.

Table 7.33

Inventory Control Techniques in PIJ

(In India Fertiliser Industry)

S.No.	Control technique	Response	
		Private Sector	Public Sector
1.	Inventory control techniques		
	- ABC	Yes	No
	- EOQ	No	No
	- Two Bin Card System	No	Yes
2.	Material Issue analysis sheet	Yes	Yes
3.	Input Material pricing		
	- Cost price of each lot	No	No
	- Market price	No	No
	- Average price	Yes	Yes

It is revealed from the analysis that private sector uses ABC analysis for inventory control and public sector uses two bin card system. In both sectors they use material issue analysis sheet. Both also sectors use the same method for pricing input material.

ABC analysis is one of the main techniques of material control. Under this system a strict control is exercised on the items which represent a high percentage of the material cost. Investment in inventory is reduced to the minimum possible level because a reasonable, quantity of 'A' items representing a significant portion of the material cost is purchased.

Two bin card system help in exercising stores control in an effective way as it facilitates physical verification and services as a signal when it becomes necessary. Also this system makes the store keeper answerable for any difference between the physical stock and the balance shown in the bin card.

Material issue analysis sheet is prepared by both the sectors to show the value of material consumed. Also this sheet helps to make an analysis of various requisitions, material returned notes and material transfer notes. Also it serve a very useful purpose, as it shows the amount of material to be debited to the various jobs and overheads.

Average price method is used for input material pricing this method recover the cost price of materials from production. This method is useful in the period of heavy fluctuation in prices of materials because it tends to smoothen their fluctuations by taking average of prices of various lots in stock.

7.4.7. Budgetary control:

A budget is a blue print for operations and an action plan of an

enterprise expressed in monetary terms. Budgetary control is exercised for control through comparing the actual results with the planned targets. Various types of budgets are prepared and different basis are used for preparation of these budgets have been outlined in table 7.34.

Table 7.34

Budgetary Control Techniques Used in PIJ

S.No.	Main Elements	Response	
		Private Sector	Public Sector
1.	Budgetary control	Yes	Yes
2.	Types of Budget		
	- Material budget	Yes	Yes
	- Labour budget	Yes	Yes
	- Overhead budget	Yes	Yes
3.	Bases of Preparing Budget		
	- Flexible budget	Yes	Yes
	- Fixed budget	No	No
4.	Flexible Budget Revising		
	- Monthly	No	No
	- Quarterly	No	Yes
	- Half yearly	Yes	No

It is revealed from the analysis of table 7.34 that both sectors, private and public sectors used budgeting control technique and prepare

the same types of budgets on the basis of flexible budget. The revision period of flexible budget figures half yearly in private sector and quarterly in public sector.

7.4.8. Standard setting:

Standard costing is a technique which uses standards for cost and revenues for control through variances. Standard costs are indicators of desirable performance. The setting of standards is one of the main factor of cost control. Any sort of loose in setting standards approach would hamper efficiency of the organisation. The analysis shows that the companies under study are using different standards. Table 7.35 presents these standards.

The analysis indicates that both sectors private and public use past record as a basis for setting standards for material. But in case of labour and overhead both sectors are differ. Time and motion study is used as a basis for setting standards for labour efficiency by public sector and average of past performance is used for setting standards of labour efficiency by private sector. A successful standards should be attainable and reasonable. Standard costing provides a basis for appraising results and discovering better ways of accomplishing objectives. It helps in simplification of cost calculation and record keeping.

Table 7.35**Standards Used in PIJ and their Bases**

S.No.	Various Standards	Response	
		Private Sector	Public Sector
1.	Material standard		
	- Test run basis	No	No
	- Scientific computation	No	No
	- Past record basis	Yes	Yes
2.	Labour standards		
	- Normal operating conditions	Yes	No
	- Estimated rate	No	No
	- Union contracts	No	No
	- Past experience	No	Yes
3.	Overhead standards		
	- Past records	No	Yes
	- Future trend of prices	No	Yes
	- Normal operating conditions	Yes	No
4.	Labour efficiency standards		
	- Time and motion study	No	Yes
	- Past performance record	Yes	No

7.4.9. Variance Analysis:

Variance is the difference between a predetermined standard cost

and the actual cost incurred for a unit of activity. Manufacturing cost variances are computed in respect of materials and labour and also overheads. It is clear from the table 7.36 that various variances are used by both sectors.

Table 7.36

Variances Used in PIJ

S.No.	Variances	Response	
		Private Sector	Public Sector
1.	Variances calculated for		
	- Raw material	Yes	Yes
	- Labour cost	Yes	Yes
	- Overhead	Yes	Yes
2.	Material Variances for		
	- Material price	Yes	Yes
	- Material quantity	Yes	Yes
	- Material yield	Yes	Yes
3.	Labour Variance for		
	- Labour rate variance	Yes	Yes
	- Idle time variance	No	Yes
	- Labour mix variance	Yes	Yes
4.	Overhead Variance for		
	- Capacity variance	Yes	Yes
	- Efficiency variance	Yes	Yes
	- Calendar variance	No	No
5.	Sales Variances for		
	- Sales volume	Yes	Yes
	- Sales mix	No	No
	- Sales price	Yes	Yes
6.	Variances Calculation Periodicity		
	- Monthly	No	No
	- Quarterly	No	No
	- Half yearly	Yes	Yes
	- Yearly	No	No

Both sectors calculate the same type of variances for raw material such as; material price, material quantity and material yield. Both the sectors calculate the same variances related with labour except idle time variance which is calculated by public sector only.

For overhead variances, both sectors consider the same type of variances such as capacity variance and efficiency variance. Sales sales volume and sales price variances are calculated by both the sectors sectors. Frequency of variance calculation is half-yearly.

Each variance reflects cost performance to which a particular manager is responsible. The frequency with which variances are measured and reported is of critical importance. Variance information helps the top management by indicating the overall efficiency of the organisation as compared to the standard or budget. Variance analysis provide means of evaluation and control.

In this chapter emphasis has been given to analyse the CAP in respect of industry in both the countries where both public and private sector enterprises exist. The analysis and interpretation of CAP in fertiliser and chemical, paper industries of both the countries have been presented in this chapter in separate sections and sub-sections. A number of costing practices have been discussed such as cost sheet and its elements, cost classification basis, cost books keeping systems, various treatment of cost items, inventory control techniques, budgetary control, cost allocation, standards setting and variance analysis.

This analysis and interpretation provides some understanding about CAPs for making comparative study of CAPs in the industries of both the countries as well as among sectors of respective industries of respective country.

CHAPTER EIGHT

COMPARISON OF COST ACCOUNTING PRACTICES & STRENGTHS AND WEAKNESSES OF CAP

- 8.1 Comparison of cost accounting practices (CAP) in fertiliser and chemical companies of India and Jordan**
- 8.2 Comparison of cost accounting practices (CAP) in paper companies of India and Jordan]**
- 8.3 Comparison of cost accounting practices (CA) in cement companies of India and Jordan**
- 8.4 Strengths and weaknesses of CAP of Indian companies**
- 8.5 Strengths and weaknesses of CAP of Jordan companies**

COMPARISON OF COST ACCOUNTING PRACTICES & STRENGTHS AND WEAKNESSES OF CAP

This chapter relates to the comparison of cost accounting practices among the enterprises of India and Jordan in respect of industry. This comparison is made on the basis of information gathered and analysis made in the chapter Vth to VIIth.

This chapter begins with comparison of CAP among the fertiliser and chemical in industry in India and Jordan followed by paper and cement enterprises in both countries. The strengths and weaknesses in India and Jordan have also been presented in section 8.4 and 8.5 respectively.

8.1 Comparison of Cost Accounting Practices (CAP) in the Fertiliser and Chemical Companies of India and Jordan

The CAP is that aspect of management which is used for classifying, recording and appropriate allocation of expenditure for the determination of the costs of products or services and for the presentation of suitably arranged data for purposes of control and guidance of management. The practice of cost accounting is by and large similar in all manufacturing enterprises of different countries and this similarity is more clear for the enterprises of some industrial groups in both the countries. However, the

system differs between the enterprises of different countries due to differences prevailing in nature of cost system applied. So an attempt has been made to launch a comparison of CAPs among the fertiliser companies in India and Jordan. This would help to have an understanding about relative strengths and weaknesses of this system in the fertiliser industry of respective countries. This comparison has been confined to the preselected aspects of CAPs and has been started with similarities followed by dissimilarities which have been identified from the analysis and interpretation of cases in earlier chapters.

Similarities:

- 1. The fertiliser and chemical companies under study in both countries have maintained cost sheet which help ascertain the cost of products or services for a particular period of time. They have classified the main elements of cost sheet like, prime cost, factory cost, work cost and cost of production.**
- 2. The private and public sector fertiliser enterprises of both countries use integrated cost accounting system for maintaining cost books.**
- 3. The companies under study in public sector in both countries use fixed and variable cost as a bases for cost classification.**
- 4. The enterprises in both countries applied absorption costing technique. Under this system most of the fixed costs are treated as a part of production cost.**
- 5. Private sector fertiliser companies in both countries use direct and**

indirect cost as a basis for cost classification.

- 6. The private sector sampled fertiliser enterprises of both countries applied the same basis which is known by the estimated rate per unit for the purpose of absorption of selling and distribution overheads.**
- 7. The public sector fertiliser industry in both countries are treating overtime wages in the same way through charging it to factory overhead account.**
- 8. Private sector fertiliser and chemical companies in both countries treat the abnormal loss of material by charging it to cost of production account. They also use ABC analysis for the purpose of inventory control.**
- 9. Public sector fertiliser and chemical industry in both countries maintain material issue analysis sheet for the purpose of determining the value of material consumed during the production period.**
- 10. The companies under study in fertiliser and chemical industry in both countries apply budgetary control technique and prepare different types of budgets related to raw material, labour and overheads.**
- 11. Flexible budget method is used as a basis for preparing various budgets in public sector companies in both countries.**
- 12. Public sector enterprises of fertiliser and chemical industry in both countries apply past record as a basis for setting material standards and union contracts as a basis for setting labour standards and future trend of prices as a basis for setting overhead standards.**

13. Private sector companies of fertiliser and chemical industry in both countries use the normal operating conditions and past experience as a basis for setting labour standards. Both companies in both countries use normal operating conditions as a basis for overhead standards setting and using past performance record as a basis for setting labour efficiency standards.
14. All the sampled enterprises in both countries calculate the same types of variances related to raw material such as material price, material quantity and material yield.
15. All the sampled enterprises in both countries calculate the same types of variances related to raw material such as material price, material quantity and material yield.
16. The fertiliser and chemical companies under study in both countries consider the same variances related to labour such as labour mix variances and labour rate variance. The same type of variance related to overhead are considered by the sampled companies in both countries like capacity and efficiency variances.
17. The companies under study in both countries consider the same variances related for sales such as sales volume and sales price.
18. In public sector companies in both countries the periodicity of variance calculation are quarterly.

Dissimilarities:

1. Private sector fertiliser and chemical companies in India use two basis

for cost classification like fixed and variable cost, direct and indirect cost but private sector in Jordan use only direct and indirect cost as a basis.

2. Public sector companies in fertiliser and chemical industry in Jordan use direct and indirect cost as a basis for cost classification but public sector in India considers capital and revenue basis for cost classification.
3. Private sector companies in Jordan consider prime cost as a basis for factory overhead absorption, but private sector companies in India consider unit cost as a basis for factory overhead absorption.
4. Public sector companies in fertiliser and chemical industry in Jordan consider labour cost as a basis for absorption of factory overhead and public sector companies in fertiliser and chemical industry in India consider unit cost as a basis for absorption factory overhead.
5. In the case of indirect cost allocation, private sector in Jordan considers cost of material consumed as a basis for allocation indirect cost and private sector in India use two methods like, direct allocation and machine hour worked as a basis for the purpose of indirect cost allocation.
6. Public sector fertiliser and chemical industry in Jordan use direct allocation method for the purpose of indirect cost allocation. But public sector in fertiliser and chemical industry in India use cost of material consumed as a basis for indirect cost allocation.

7. In case of selling and distribution overhead absorption, public sector in Jordan consider percentage on selling price per unit as a basis and public sector in India consider estimated rate per unit as a basis.
8. Private sector fertiliser and chemical industry in Jordan treat overtime wages by charging it to factory overhead account and private sector fertiliser and chemical industry in India treat overtime wage by charging it to profit and loss account.
9. The sampled enterprises in fertiliser and chemical industry in Jordan in both sectors treat the idle time in the same way through charging it to factory overhead account and the sampled enterprises of fertiliser and chemical industry in both sectors in India are treating idle time through charging it to profit and loss account.
10. Abnormal loss of material are charged to profit and loss account in public sector companies in India but to cost of production account in public sector companies in Jordan.
11. Public sector fertiliser and chemical industry in Jordan consider perpetual inventory system for the purpose of inventory control and public sector fertiliser and chemical industry in India uses ABC analysis technique for the purpose.
12. Private sector companies under study in Jordan consider material issue analysis sheet, but private sector companies in India does not consider material issue analysis sheet.
13. For the purpose of pricing input material, public sector in Jordan

consider average price method and public sector in India consider cost price of each lot method. Also private sector fertiliser and chemical industry in Jordan consider cost price of each lot as a method for pricing input material, but private sector fertiliser and chemical industry in India consider average price method for pricing input material.

14. Private sector companies under study in Jordan consider flexible budget method as a basis for preparing different types of budgets, but private sector in India consider fixed budget method for preparing various types of budgets.
15. In public sector in both countries the revision period of flexible budget is monthly in India and half yearly in Jordan.
16. Private sector fertiliser and chemical industry in Jordan consider scientific computation as a basis for material standards setting and private sector fertiliser and chemical industry in India consider past record as a basis for material standards setting.
17. The sampled enterprises in public sector in India consider different bases like; past records, future trend of price and normal operating conditions for the overhead standard setting but public sector in India consider only future trend of prices for overhead standards setting.
18. Private sector companies in India consider two basis for setting overhead standards, like past records and normal operating conditions, but private sector companies in Jordan consider only one basis which

is known as normal operating conditions.

19. In case of setting labour efficiency standards, public sector in Jordan consider past performance records and public sector in India applies time and motion study.
20. Private sector fertiliser and chemical industry in Jordan consider different types of variances related to labour like; labour mix, idle time and labour rate but private sector fertiliser and chemical industry in India uses only one type of variances related to labour known as labour mix variance.
21. Public sector fertiliser and chemical industry in Jordan applies two types of variances related to labour like labour rate and labour mix variance in comparison with public sector companies in fertiliser and chemical industry in India which consider only one type of variances related to labour which is known as labour rate variance.
22. Efficiency variance which is related to overhead variance is considered only by public sector in India and not by public sector in Jordan.
23. Sales mix variance is calculated only in private sector in Jordan and not by private sector in India.
24. Public sector fertiliser and chemical industry in Jordan consider only sales volume variances but public sector in fertiliser and chemical industry in India consider sales volumes, sales mix and sales price variance.

25. **Variances calculation period in private sector in Jordan is half yearly and in private sector in India is monthly.**

8.2 Comparison of Cost Accounting Practices (CAP) in the Paper Companies in India and Jordan

The cost accounting practices prevailing in the paper enterprises in India and Jordan differ from enterprise to enterprise and from sector to sector. The rules and regulations prevailing in the respective country, policies and guidelines formulated by the board of directors of the respective company, statutory rules and regulations of the corporation to ensure effective management and control of the company in the respective country have sharpen these differences. There are similarities in the execution of costing practices. In the enterprises of different countries. This is more true for enterprises of same industrial groups. So attempts have been made to institute a comparison of CAP in paper industrial enterprises of India and Jordan. This comparison has been confined to the selected aspects of CAP. At the beginning similarities of the systems have been specified followed by dissimilarities which have been unearthed from the analysis and interpretation of CAP industry of respective country.

Similarities:

1. **The paper companies under study in both countries prepare cost sheet with its main elements like, prime cost, factory cost, work cost and cost of production.**
2. **The companies under study in paper industry in both countries**

maintained integrated cost accounting system for keeping cost books.

- 3. Public sector companies in both countries use the fixed and variable cost as a basis for cost classification.**
- 4. The enterprises of paper industry in both countries apply the absorption costing technique as a costing system.**
- 5. Private sector paper industry in both countries used the estimated rate per unit as a basis for absorption of selling and distribution overheads.**
- 6. Public sector companies in both countries treat the idle time by charging it to factory overhead account.**
- 7. Private sector companies in paper industries in both countries treat abnormal loss of material by charging it to cost of production account.**
- 8. The public sector companies in paper industry in both countries treat abnormal loss of material by charging to profit and loss account.**
- 9. All the sampled enterprises in paper industry in both countries maintained material issue analysis sheet which help to show for the value of material consumed during the production period.**
- 10. All the enterprises under study in paper industry in both countries budgetary control technique and prepare various types of budgets like raw material budget, labour budget and overhead budget. All these budgets are prepared on the basis of flexible budget system.**
- 11. Past records as a basis for setting the material standards is applied by private sector companies in both countries. Also private sector in both**

countries use past performance records as a basis for setting labour efficiency standards.

- 12. Overhead standards are set on the basis of past records in public sector enterprises in both countries.**
- 13. A number of variances such as material yield, sales volume, labour mix and efficiency variances are considered in public sector enterprises in both countries.**
- 14. A number of variances such as material price, material quantity, sales volume, sales price are used in private sector enterprises in both countries.**

Dissimilarities:

- 1. Private sector enterprises of paper industry in Jordan applies fixed and variable cost as a basis for cost classification but private sector in India uses functional classification.**
- 2. Private sector companies in Jordan use material cost as a basis for factory overhead absorption, but private sector in India use machine hour as a basis for overhead absorption.**
- 3. Material cost as a basis for overheads absorption is applied in public sector companies of paper industry in Jordan, but in case of public sector companies in India unit cost is used as a basis overhead absorption.**
- 4. All the sampled enterprises of both sectors in Jordan applied direct**

allocation method for indirect cost allocation and the sampled enterprises under study in both sectors in India consider cost of material consumed as a basis for indirect cost allocation.

5. Private sector enterprise of paper industry in India uses estimated rate per unit and percentage on work cost as a basis for absorption of selling and distribution overhead, but in case of private sector in Jordan only estimated rate per unit is used.
6. In the case of absorption of selling and distribution overheads, public sector in Jordan apply estimated rate per unit as a basis for absorption whereas public sector in India applies percentage on selling price as a basis for absorption of selling and distribution overhead.
7. The paper enterprises under study in Jordan treats overtime wages charging it to factory overhead account and the paper enterprises under study in India are charging the overtime wages to costing profit and loss account.
8. Idle time is charged to factory overhead account in private sector companies in Jordan and to profit and loss account in private sector in India.
9. For the purpose of inventory control, public sector in Jordan use two bin card system and public sector in India use ABC analysis technique.
10. In the case of inventory control techniques, private sector enterprises in Jordan apply ABC analysis, but those in India applies economic order quantity (EOQ).

11. For the purpose of pricing input material, public sector in Jordan consider average price method and public sector in India consider cost price of each lot.
12. In the case of pricing input material, private sector Paper industry in Jordan uses average price method and private sector in India uses market price method.
13. Flexible budget revision period varies in both sectors and in both countries. In public sector companies in Jordan it is quarterly and in public sector companies in India it is monthly. In private sector companies in Jordan it is half yearly and in private sector companies in India it is quarterly.
14. For the purpose of setting standards for material, public sector enterprises in Jordan consider past record as a basis and public sector enterprises in India consider test run.
15. Public sector companies in paper industry in Jordan apply past experience as a basis for labour standards setting and public sector companies in India consider union contracts as a basis for setting labour standards.
16. Private sector paper industry in Jordan consider normal operating conditions as a basis for setting labour standards and private sector enterprises in paper industry in India consider union contracts as a basis for setting labour standards.
17. Private sector paper industry in Jordan consider normal operating

conditions as a basis for setting overhead standards and private sector in paper industry in India consider past records as a basis for setting overhead standards.

18. Public sector enterprises in Jordan use time and motion study for setting labour efficiency standards and public sector enterprises in India apply past performance records for labour efficiency.

8.3 Comparison of Cost Accounting Practices (CAP) in Cement Industrial Enterprises in India and Jordan

The cost accounting practices (CAP) is practiced in all categories of industries and enterprises irrespective of size, structure, form of ownership, nature of operation and belonging to countries in some way or others. The exercise of CAP vary from industry to industry, enterprise to enterprise and sector to sector depending upon the policies of procedures followed by respective companies. These differences are also present among the industrial enterprises of India and Jordan in many respect due to the discrepancy of policies of the companies, the industrial policy prevailing in these countries and nature of costing system applied. However, some similarities exist in the execution of this practices in the industrial enterprises of both countries. This is a comparison system of CAP between the CCI and JCF, the public sector cement enterprises in India and Jordan respectively. An attempt has been made to initiate a comparison of CAPs in the public sector cement enterprises in India and Jordan. This would help to have an insight into relative strengths and weaknesses in practices in a particular industry of the respective countries. At the beginning, the similarities of the

practices between the enterprises of both the countries are specified followed by dissimilarities.

Similarities:

1. The cement industrial companies under study in both countries apply cost sheet statement. They have classified the elements of cost sheet such as prime cost, factory cost, work cost and cost of production.
2. The public sector companies in both countries of cement industry use the fixed and variable cost as a basis for cost classification.
3. The public sector companies of cement industry in both countries applied absorption costing and activity based costing as a techniques of costing.
4. The sampled enterprises in both countries in cement industry charging overtime wages, idle time to profit and loss account.
5. The public sector companies in both countries maintain material issue analysis sheet to show the value of material consumed. Also they use average price as a method of pricing input material.
6. All the sampled enterprises in cement industry in both countries use budgetary control technique as a technique for control and planning. They also prepare various types of budgets related to raw material and labour overheads.
7. Flexible budget is used as a basis for preparing various types of budgets in all the enterprises under study in both countries. The

period of revising flexible budget also are monthly in both companies of cement industry in both countries.

8. All the companies under study in cement industry in both countries use past records as a basis for setting overhead standards.
9. A number of variances related to raw material, labour overheads and sales are considered and calculated in companies of cement industry in both countries. These variances are material price, material quantity, material yield, labour mix, efficiency variance, capacity variance, calender variance, sales volume, sales price.
10. The periodicity of calculation of different variances are monthly in all the companies under study in both countries.

Dissimilarities:

1. Public sector companies cement industry in Jordan consider non-integrated cost system for keeping cost books, but those in India use integrated cost system for keeping cost books.
2. The public sector companies of Jordan cement industry consider machine hour and direct labour as a basis for absorption of factory overhead, but those in India unit cost basis is adopted for this purpose.
3. Two bin card system is used by public sector companies industry in Jordan as an inventory control, while in India ABC analysis is used for the same.

4. **Public sector companies in India consider scientific computation as a basis for setting standards of raw material, and normal operating conditions as a basis for setting labour standards and time and motion study as a basis for setting labour efficiency standards. On the other hand, public sector companies cement industry in Jordan uses past records as a basis for setting raw material standards and past experience as a basis for setting labour standards and past performance records as a basis for setting labour efficiency standards.**
5. **Sales mix variance is adopted only by public sector cement industry in Jordan and not in India.**

8.4 Strengths and Weaknesses of CAPs in the Indian Companies

The nature of CAPs varies from organisation to organisation. So the strengths and weaknesses of CAPs of Indian companies have been pointed out individually. The overall strengths and weaknesses of CAP in the sampled Indian companies which have been located from the observation, analysis and interpretation of the study are highlighted as follows:

8.4.1 Strengths and Weaknesses of CAP of VAM organic chemistry limited

1. Strengths of CAPs in VAM:

1. **Cost sheet helps in finding out the total cost and cost per unit produced during the given period. It also helps the manufacturer to keep a close watch and control over the cost of production.**

2. **Integrated cost accounting system which is applied in VAM company is helpful to avoid duplication in recording accounting transactions, it helps to avoid delay in cost data and helps to avoid possibility of overlooking any expenses.**
3. **Fixed and variable cost as a basis for cost classification helps to make clear distinction between product and period costs, it also helps in estimating indirect expenses, better control can be exercised over expenses. It also helps to decide whether to make a part or to buy that from outside sources.**
4. **Different items of cost like overtime wage and idle time are charged to profit and loss account. This way of treatment make the comparison of cost of production of different periods more easily and meaningful.**
5. **A-B-C analysis as a technique of inventory control helps to concentrate all efforts in areas which need genuine efforts, it provides close and strict control over cost items.**
6. **The VAM company uses budgetary control technique as a method of planning. It helps to creates a sense of all level of management in the process of fulfillment of the targets of organisation and better coordination between different functions.**
7. **A number of variances related to raw material, labour, overhead and sales are calculated in VAM. These variances provide information to the management which helps in control and performance evaluation. The revision and calculation period of variances are within a short**

period.

2. Weaknesses of CAPs in VAM

1. **Cost sheet is a memorandum statement, therefore, it does not form part of double entry cost accounting records.**
2. **Integrated cost accounting system which is applied in VAM records financial transactions not normally required for cost accounting. This system also required high level of coordination between staff responsible for financial and cost aspects.**
3. **Two basis are used in VAM company for cost classification, these basis are fixed and variable cost and direct and indirect cost. Two basis for cost classification effect the degree of accuracy of facts and realities.**
4. **The absorption costing technique which is used in VAM company creates difficulty in cost comparison and cost control, it does not help in taking managerial decisions such as selection of suitable product mix, whether to buy or manufacture, choice of alternatives.**
5. **To charge abnormal loss of material to cost of production account make difficulty in comparison of the cost of production of current year with previous years.**
6. **Preparing the various budgets on the basis of fixed budget method make difficulty to modify the budget according to the change in output or activity.**

7. **Past records which is used as a basis for setting different standards serves no purpose, unless past performance was excellent.**
8. **A-B-C analysis is required a popular standardisation for material being carried in the store house to achieve its objectives.**

8.4.2 Strengths and Weaknesses of CAP of Hindustan Fertiliser Corporation

1. Strengths of CAPs in HFC:

1. **Cost sheet helps the management to make a comparative study of the various element of current cost with the past results. It also helps to find out the causes of variations in costs and to eliminate the adverse factors and conditions which go to increase the total cost.**
2. **The integrated cost accounting system which is used in HFC for recording cost transactions is helpful in avoiding duplication of recording accounting transactions. Analysis can be easily made, cost data are obtained easily and there is no possibility of overlooking any expenses.**
3. **Due to the use of fixed and variable cost as a basis for cost classification, better control can be exercised over cost.**
4. **Different aspects of cost like overtime wages, idle time, abnormal loss of material are charged to profit and loss account. This way of treatment is compatible with costing rules and principles.**
5. **ABC analysis as technique of inventory control helps in close and**

strict control on cost items.

- 6. Budgetary control is used in HFC which helps as a method of planning. It is a systematic means for formulating and coordinating plans of many individuals and departments.**
- 7. Flexible budget method is used as a basis for drawing various types of budgets. The budget changes in accordance with the level of activity actually attained.**
- 8. Different standards like material standards, labour standards and overhead standards, provide bases for control through variance analysis which is used in HFC.**
- 9. A number of variances related to material labour, overhead, sales are calculated and considered which bring to the surface the elements of performance which require attention.**
- 10. Analysis of various variance is helpful in evaluating the performance and achieving the profits as per plan, helps to locate the reasons and person or department responsible for a particular variance. The revision period and calculation period of different variances is also short.**

2. Weaknesses of CAPs in HFC:

- 1. Cost sheet is a memorandum statement, therefore, it does not form part of double entry cost accounting records. Due to the entire data of cost sheet, it become necessary to reconcile the information obtained from cost accounting and financial accounting periodically and**

separately.

2. The absorption costing technique which is used in HFC create difficulty in cost comparison and cost control.
3. ABC analysis as a technique for inventory control require a popular standardisation of material to achieve its objectives.
4. Past records which is used as a basis for setting material standards, serve no purpose, unless past performance was excellent.

8.4.2 Strengths and Weaknesses of CAP in Indian Paper industry

A lot of strengths and weaknesses in the exercise of CAPs have been discovered from the analysis of cases and observation and discussion made during survey with concerned personnels. Some of the strengths and weaknesses are common to both the enterprises others differ between them. These have been pointed out as below.

Strengths and Weakneses of CAP in Continental Paper Limited

A. Strengths of CAP in CPL:

1. The cost sheet is helpful in ascertaining the cost per unit of the units produced during a given period. It also help the manufacturer to keep close watch and control over the cost of production.
2. The integrated accounting system applied in CPL helps in avoiding duplication in recording accounting transactions. No delay in obtaining cost data. It also makes the accounting procedure more simple.
3. Functional classification as a basis for cost classification helps in

identification of cost of a particular product.

- 4. The absorption costing technique which is prevailing in CPL considers fixed and variable cost for manufacturing cost.**
- 5. Machine hour which is applied as a basis of factory overhead absorption is helpful in calculating the manufacturing overhead more accurately. It also helps in comparison of the relative efficiencies and cost of operating different machines.**
- 6. Various aspects of cost such as overtime wages, idle time are charged to profit and loss account. This method of treatment is compatible with cost principles and rules.**
- 7. Flexible budget method which is used as a basis for drawing various budgets is helpful in modifying the budget according to the changes in output or level of activity. The revision period of flexible budget is also short.**
- 8. Various standards related to raw material, labour, and overheads are calculated and used in CPL. These standards help to provide bases for control through variance, simplification of cost calculations and record keeping is possible.**
- 9. A number of variances related to raw material, labour, overheads, sales are considered in CPL. The calculation of these variances is helpful to the top management in indicating the overall efficiency of the organisation. It also brings to the surface the elements of performance which require attention.**

Weaknesses of CAP in CPL:

1. The integrated accounting system used to record financial transactions is not normally required for cost accounting. It also requires high level of coordination between staff responsible for the financial and cost aspects.
2. Absorption costing technique which is used in CPL is not helpful in taking decision in a short period. It makes difficulty in cost comparison and cost control. The control is vitiated due to the fixed cost which is carried forward to the next period. It is not compatible with flexible budgeting procedures.
3. Charging of abnormal loss of material to cost of production accounts, makes no meaningful comparison of cost of production at different times.
4. Past records which is used as a basis for setting different standards like raw material standards, labour efficiency standards and overhead standards, serve no purpose, unless the past performance was excellent.

B. Strengths and Weaknesses of CAP in Hindustan Paper Corporation (HPC)

1. Strengths of CAP in HPC:

1. Cost sheet helps to make a comparative study of the various elements of current cost with past results and also helps in finding out the causes of variations in cost and to eliminate the adverse factors and

conditions which go to increase the total cost.

- 2. The integrated accounting system used in HPC provides different benefits like; no duplication in recording accounting transactions, analysis can be made easily, no delay in obtaining cost data and no possibility of overlooking any expenses.**
- 3. Fixed and variable cost which is used as a basis for cost classification helps to estimate the indirect cost. Better control is exercised over cost and helps in decision of whether to buy or to make.**
- 4. The absorption costing technique which is used in HPC provide many benefits for the organisation like absorbing all the manufacturing cost and charging it to product costs and fixed manufacturing overhead is utilised and assigned to products.**
- 5. Different cost items like overtime wages, abnormal loss of material are charged to costing profit and loss account. This way of treatment is compatible with cost principles.**
- 6. ABC analysis which is used in inventory control helps in close and strict control on high value cost items, produces recording results. It is the most effective and economical method.**
- 7. Budgeting control is helpful as a method of planning, systematic means for formulating and coordinating plans of many individuals and departments. The most effective mechanism for monitoring and controlling cost is budgeting control.**
- 8. Flexible budget method, which is used as a basis for drawing various**

budgets, helps in modifying the budget according to the changes in economic conditions and change in output or level of activity.

- 9. Various standards are set like raw material standards, labour standards and overhead standards. These standards help in monitoring costs and measuring efficiency. It also provides basis for control through variance accounting.**
- 10. Various variances have been calculated like variances related to raw material, labour, overheads and sales etc. Variance information help the top management in indicating the overall efficiency of the organisation compared with the standards. It provides a means of control and evaluation. Variance analysis also bring to the surface the elements of performance which require attention.**

2. Weaknesses of CAP in HPC:

- 1. Cost sheet is a memorandum statement, therefore it does not form part of double entry cost accounting records. Also financial account can be modified to provide same information obtained from cost sheet.**
- 2. Integrated accounting system records financial transactions not normally required for cost accounting, it also requires high level of coordination between the staff responsible for the financial and cost aspects.**
- 3. The absorption costing technique used in HPC is not compatible with flexible budgeting procedures. It creates difficulty in cost comparison and cost control. Also it is not helpful in taking managerial decisions**

such as selection of suitable product mix and whether to buy or to manufacture decision.

4. Unit cost as a basis for absorption of factory overhead requires substantial amount of time and cost of implementation.
5. ABC analysis requires a popular standardisation for material to achieve its objectives.
6. Past record which is used as a basis for labour efficiency standards, overheads standards, serves no purpose unless past performance was an excellent one.

C. Strengths and Weakness of CAP in Cement Corporation of India

1. Strengths of CAP in CCI

1. Cost sheet helps to ascertain the total cost and the cost per unit during a given period. It helps to make a comparative study of the various elements of current cost with past (cost). Also it help the manufacturer to keep close watch and control over the cost of production.
2. The integrated cost system maintained in CCI help to avoid duplication in recording accounting transaction, cost data are easily obtained and there is no possibility of overlooking any expenses.
3. Fixed and variable cost which is used as a basis for cost classification is helpful in proper estimation of indirect cost. Better control can be exercised. It also helps in decision of make-or-buy.
4. Absorption costing technique absorbs all manufacturing cost and

assigns fixed manufacturing overheads to product.

- 5. Activity based costing (A-B-C) which is used in CCI as a costing technique, helps to improve product cost information by reducing the distortion in product line costs. A-B-C reveals how the significant resources are utilised by low volume products and complex production operations. It also helps managers to determine selling process more precisely.**
- 6. Activity based costing system leading to the best allocation of score resources, provide feedback information related to product design and potential areas for process improvement or waste elimination. Also A-B-C improves the performance measurement process. It is more accurate method for overheads allocations.**
- 7. Different items of cost like overtime wages, idle time, abnormal loss of material are charged to profit and loss account in CCI. This way of treatment is compatible with cost principles.**
- 8. ABC analysis, which is applied as inventory control technique, is useful for close and strict control on high value cost items, helps to concentrate all efforts in areas which need real efforts. It is the most effective and economical method as it is based on selective approach.**
- 9. Budgetary control used in CCI is helpful as a technique of planning a systematic means for formulating and coordinating plans of many individuals and departments. Also it is considered as the most effective mechanism for monitoring and controlling cost.**

10. **CCI uses flexible budget method for drawing different types of budgets. This method is designed to change the budget in accordance with the level of activity actually attained. The figures of flexible budget is revised at short intervals in CCI.**
11. **CCI sets different standards like raw material standards, labour standards, overhead standards. The setting up of these standards facilitates control.**
12. **A number of variances are considered and calculated in CCI. Analysis of variances is helpful in controlling the performance and achieving the profits per plan. It provides the key to cost control and helps in locating the reason and person or department responsible for a particular variance.**

2. Weaknesses of CAP in CCI:

1. **Financial account can be modelled to provide the same information which is obtained from cost sheet related to production cost. Cost sheet is a memorandum statement, therefore, it does not form part of double entry cost accounting records.**
2. **Integrated cost accounting system used in CCI records financial transactions not normally required for cost accounting. Also it requires high level of coordination between staffs responsible for the financial and cost aspects.**
3. **Absorption costing technique create difficulty in cost comparison and cost control. It is not compatible with flexible budgeting procedures**

and in taking decisions in short time.

4. **ABC analysis requires a popular standardisation of material to achieve its objectives.**
5. **Activity-based-costing techniques (A-B-C) which is applied in CCI, requires a substantial amount of time and cost to implement. A-B-C requires a substantial commitment from upper management and all levels of employees, to be successful.**
6. **Activity based costing technique requires an environment for change. This may lead employees to resist its application. ABC requires extensive education of employees at all levels about its principles and mechanics.**

8.5 Strengths and Weaknesses of CAPs in the Jordanian Companies

Cost accounting practices varies from enterprises to enterprise. The strengths and weaknesses of cost accounting practices (CAP) of Jordanian companies have been located from the observation. The analysis and interpretation of the study are highlighted as follows:

8.5.1 Strengths and Weaknesses of CAP in intermediate-petro-chemical industries (IPI)

1. Strengths of CAP in IPI

1. **Cost sheet helps in finding out the cost per unit and total cost of all units produced during a given period. It also helps the manufacturer to keep close watch and control over the cost of production. It helps**

to make comparison between the current results and past results.

2. The integrated accounting system applied in IPI provides many benefits to the organisation such as; no duplication in recording transactions, accounting procedures is simplified, cost data can be obtained and the possibility of overlooking any expenses is less.
3. Direct and indirect cost which is used as a basis for cost classification is helpful in ascertaining which cost is traced easily to the particular product or service and which cost can not be traced easily to particular product or service.
4. Absorption costing technique, which is applied in IPI as a costing technique, helps in assigning all manufacturing cost to the products produced. Fixed overhead manufacturing is utilised and analysed to units produced. This make clear distinction between period cost and product cost.
5. ABC analysis, which is used in IPI as an inventory control technique helps in strict and close control on high value items.
6. Budgetary control technique is used as method of planning, creates a sense of awareness at all levels of management in the process of fulfilment of the targets of organisation and better coordination between different functions.
7. IPI used flexible budget method as a basis of designing all types of budgets. Under this method the budget is designed to change according to the changes in the level of activity or output. The budget figures are

revised within a short time.

8. IPI depends on scientific computation as a basis for setting material standards. This company also considers another type of standard related to labour efficiency overheads. This standard facilitate control.
9. A number of variances related to raw material, labour, overheads, and sales are calculated in IPI. These variances provide information to the management which helps in control and performance evaluation.

Weaknesses of CAP in IPI:

1. The entire data for preparation of cost sheet is derived from financial accounting, therefore it becomes necessary to reconcile the information obtained from cost accounting and financial accounting periodically and separately.
2. The integrated cost accounting system records unnecessary financial transactions for cost accounting.
3. The absorption costing technique applied in IPI creates difficulty in cost comparison and control. It is not helpful in decision making process either.
4. IPI is charging different aspects of cost like overtime, idle time, abnormal loss of material to cost of production account which is not suitable to the costing principles. It also create difficulty in comparison of cost of production of current period with past periods.
5. ABC analyses, an inventory control technique, requires proper

standardisation of material to achieve its objectives.

- 6. For setting overhead standards and labour efficiency standards, IPI depends on past records, but this basis serves no purpose, unless the past performance was excellent.**

B. Strengths and Weaknesses of CAPs in Jordan Phosphate and Mines Company

1. Strengths of CAPs in JPMC:

- 1. Cost sheet helps in getting information about the total cost and the cost per unit. It also helps the management to keep close watch and control over the cost of production, produces a comparative study of various elements of the current cost with the past results and standard cost.**
- 2. Non-integrated cost accounting system is used in JPMC which helps in policy formulation, provides the basis for analysis of cost and preparation of accounts for each centres it provides a proper control over material, labour and overhead. It also helps in determining the values of closing stock and work-in-progress without delay.**
- 3. JPMC used two basis for cost classification as direct and indirect cost, and fixed and variable cost basis. Direct and indirect basis helps in determining which cost can be easily traced to a particular product and which is difficult to be traced. Fixed and variable basis helps in proper estimation of indirect cost, helps in taking decision related with whether to buy or make.**

4. **Absorption costing is applied in JPMC as a technique of costing. Under this system all the manufacturing cost is assigned directly to the units produced.**
5. **The direct labour cost is used as a basis for factory overhead absorption in JPMC. This basis is giving consideration to time factor, as wages paid are normally proportional to the time worked.**
6. **JPMC apply perpetual inventory system as an inventory control technique. This system helps in a wide dislocation of production and to prepare periodical profit and loss account and balance sheet. Detailed and more reliable check on the store is obtained, and it keeps the stores and records up-to-date, errors and shortage of stock are readily discovered.**
7. **Budgetary control is used in JPMC, which leads to maximum utilisation of resources. With a view to ensuring return it leads to better coordination and understanding between different functions. It creates a sense of awareness at all levels of management in the process of fulfilment of targets.**
8. **Flexible budget method is used in JPMC as a basis for designing different types of budgets. This method draws the budget to change according to the changes in output or levels of activity.**
9. **A number of standards are set in JPMC, such as standards related to raw material, labour, labour efficiency, overheads. These standard help in providing a basis for control through variance analysis. It**

facilitates integration of accounts, simplification of cost calculation and record keeping.

- 10. A number of variances are calculated and considered in this company like variances related to material, labour overheads and sales etc. Variance analysis provide a means of control and evaluation. It indicates the overall efficiency of the organisation and the trend of progress of the organisation.**

Weaknesses of CAP in JPMC:

- 1. Financial accounts are modelled in a form to do the same duty of cost sheet. Cost sheet need periodic reconciliation of the accounts from cost accounts and financial account. Because the data required for preparing cost sheet is derived from financial accounts.**
- 2. Absorption costing technique which is used in JPMC does not help in decision making and create difficulty in cost comparison and control.**
- 3. Direct labour cost as a basis used in JPMC for factory overhead absorption is useless in case of the workers being paid on piece rate basis. No distinction is made between fixed and variable expenses.**
- 4. Past record which is used as a basis for selling different standards serves no purpose, unless past performance was excellent.**
- 5. A number of cost aspects like overtime wages, idle time, abnormal loss of material are charged to cost of production account. This is not compatible with cost principle, which assumes that all these should be charged to profit and loss account. This way of treatment creates**

difficulty in cost of production for different times.

8.5.2 Strengths and Weaknesses of CAPs Related to Arab Paper converting and trading company

1. Strengths of CAP in APCT:

1. Cost sheet helps the management in making a comparative study of the various elements of current cost in ascertaining with the past results. It also helps in finding the causes of variations in cost and eliminate the adverse factors and conditions which contribute in increasing the total cost.
2. The integrated cost accounting system, which is used in APCT for recording cost transactions, helps in avoiding duplication of cost data and there is no delay in obtaining the data.
3. Due to the usage of fixed and variable cost as a basis for cost classification, better control can be exercised over cost, estimation of indirect cost. It helps in determining which cost changes when the level of activity shifts and which does not change.
4. ABC analysis is used in APCT as a technique of inventory control. It helps in measuring the cost significance of each item of material, strict control is exercised on the items which represent high percentage of the material cost, investment in the inventory is reduced to the minimum possible level.
5. Material issue analysis sheet is prepared in APCT to show the value of material consumed. It also helps in making analysis of various

requisitions, material return notes and material transfer. It also serves very useful purpose, as it shows the amount of material to be debited to the various jobs and overheads.

6. **Average price method is used in APCT as a method for pricing input material. This method is useful in the period of heavy fluctuation in prices of material because it tends to smoothen these fluctuations by taking average of prices of various lots in stock.**
7. **Budgetary control system is applied in APCT, this technique of control is useful in defining objectives and policies of the business as a whole, it serves as a communicative link between different levels of management and between management and workers, enables management to decentralise responsibility without losing control of the business.**
8. **Flexible budget is used as a basis for drawing different types of budgets. This method is helpful in expediting expense control, facilitates development of the departmental expense budgets for inclusion in the profit plans.**
9. **All the manufacturing costs are assigned to the product produced due to the absorption costing technique being applied in APCT.**
10. **Different standards related to raw materials, labour, overheads are set in APCT, which provide a basis for appraising results and discussing better ways of accomplishing objectives. It also helps in simplification of cost calculation and record keeping.**

11. **Various variances are considered in APCT like that of raw material, labour, overheads and sales etc. Variance analysis helps in effective use of the principle of management by exception as variance information helps the top management by indicating the overall efficiency of the organisation as compared with standard.**

2. Weaknesses of CAP in APCT:

1. **Cost sheet is a memorandum statement, therefore, it does not form part of double entry cost accounting records. Also due to the enforcement for cost sheet, it becomes necessary to reconcile the information obtained from cost accounting and financial accounting periodically and separately.**
2. **The absorption costing technique used in APCT creates difficulty in cost comparison and cost control. It is not helpful in taking decisions especially in short time. It is also not compatible with flexible budgeting procedures.**
3. **ABC analysis as a technique of inventory control technique requires a population standardisation of materials to achieve its objectives.**
4. **Various aspects of cost like overtime wages, idle time and abnormal loss of material are charged to cost of production account. This way of treatment creates difficulty in comparison of cost of production of different times.**
5. **Past records are used as a basis for setting different standards for raw material, labour efficiency. This method serves no purpose, unless**

the past performance was excellent.

Strengths and Weaknesses of CAPs Related to Jordan paper and Cardboard factories

1. Strengths of CAPs in JPCF:

1. Cost sheet is helpful in ascertaining the total cost and the cost per unit of the units produced during a given period, it also enables the manufacturer in formulating a definite useful production policy. It also provides a comparative study of the various elements of current cost with the past results.
2. Integrated cost accounting system which is used in JPCF as a system for cost books keeping is useful in avoiding duplication in recording. This system is simple, economical and an automatic check on the correctness of the cost data is made possible.
3. Fixed and variable cost as a basis for cost classification in JPFC, is useful in proper estimation of indirect cost, better control is exercised over cost and helps in decision of whether to buy or to make.
4. The absorption costing technique which is useful in JPCF provides many benefits to the organisation such as; absorbing all the manufacturing cost and assigning it to product costs.
5. Abnormal loss of material is charged to profit and loss account, which is compatible with cost principles.
6. Material issue analysis sheet is used in JPCF to show the value of material consumed during a given period of production. It also helps

in making analysis of various requisitions, material returned notes, and material transfer notes. It also shows the amount of material to be debited to the various jobs and overheads.

7. Two bin system which is used in JPCF as an inventory control method, is helpful in exercising stores control in an effective way as it facilitates physical verification and serves as a signal when it becomes necessary. Also this system makes the store keeper answerable for any differences between the physical stock and the balance shown in the bin card.
8. Budgetary control helps in providing a mechanism for defining the goals of the business and establishing steps for attaining this goals. It also enables management to decentralise responsibility without losing control of the business.
9. Flexible budget method which is used as task of drawing different types of budgets helps in designing the budget to change according to the changes in level of activity or output. It also facilitates the development of the departmental expense budgets for inclusion in the profit plans.
10. A number of standards related to raw material, labour and overheads are set in JPCF. These standards provide a basis for control, serve as indication of desirable performance, provides a basis for appraising results and discovering better ways of accomplishing objectives, it helps in simplification of cost calculation and record keeping.
11. Many variances related to raw material, labour, overheads and sales

are calculated in JPCF. Variances information is helpful in effective use of the principle of management by exception. It also helps the top management by indicating the overall efficiency of the organisation as compared with standard. It also provides a means of evaluation and control.

2. Weaknesses of CAP in JPCF

1. Integrated cost accounting system records financial transactions which is not normally required for cost accounting.
2. Cost sheet is a memorandum statement, therefore, it does not form part of double cost accounting records.
3. Absorption costing technique creates difficulty in cost comparison and cost control. It is compatible with flexible budget procedures. It does not help in taking managerial decisions such as decisions related to choice among alternatives, whether to buy or to make.
4. Two bin card system which is used as a technique for inventory control is suitable for items of low value of fairly consistent usage and it is not sensitive to changes in demand or lead time.
5. Different aspects of cost like overtime wages, idle time are charged to cost of production account. This treatment is not compatible with cost principles, and does not make meaningful comparison of cost of production of different times.

Strengths and Weaknesses of CAP Related to Jordan Cement Factories company

1. Strengths of CAP in JCF:

- 1. Cost sheet helps to provide comparative study of the various elements of current cost with past results. It helps to show the total cost and cost per unit for a given period of production. It also useful in controlling cost of production.**
- 2. Non-integrated cost accounting system which is used in JCF for cost transactions recording helps in policy formulations, provides the basis for cost analysis and proportional accounts for each overhead, helps in determining the values of closing stocks and work-in-progress without delay.**
- 3. Fixed and variable cost which is used as a basis for cost classification helps in proper estimation of direct cost, better control exercised and it helps in taking managerial decision such as whether to buy or make.**
- 4. Absorption costing technique, which is used in JCF, absorbs all the manufacturing cost, fixed overhead are utilised and assigned to particular products.**
- 5. Activity-based-costing which is used in JCF as a costing technique help in improving product cost information, it also reveals how the significant resources are utilised by low-volume products and complex production operation, helps managers in determining selling price more precisely.**

6. **Activity-based-costing lead to the better allocation of scarce resources and provide feedback information related to product design and potential areas for process improvement or waste elimination. It also helps in improving the performance measurement.**
7. **Different items of cost like overtime wages, idle time are charged to cost profit and loss account in JCF. This way of treatment is compatible with cost principles.**
8. **Two card bin system which is used as a technique for inventory control helps in exercising stores control in effective way, as it facilitates physical verification and serves as a signal when it becomes necessary.**
9. **Material issue analysis sheet is used in JCF to show the value of material consumed during a production period. It also helps in analysing various requisitions, material returned notes and material transfer notes. It also helps to show the value of material to be debited to the various jobs and overhead.**
10. **Budgetary control is used as technique of planning in JCF. It helps in defining the objectives and policies of whole business, communicative link between different levels of management and between management and workers. It is considered as most effective mechanism for monitoring and controlling cost.**
11. **JCF uses flexible budget method as a basis for preparing different types of budgets. This method is helpful in making the budget more flexible with the changes in output or level of activity. It also helps in**

controlling the various expenses. The flexible budget figures are revised at short intervals in JCF.

12. JCF set different standards related to raw material, labour and overheads. These standards provide a basis for control. It serves as indicators for desirable performance.
13. Many variances in JCF are calculated like variances related to raw material, labour, overheads and sales etc. Variance information helps in controlling the performance and achieving the profits as per plan. It provides key to cost control.

2. Weaknesses of CAP in JCF:

1. Absorption costing technique creates difficulty in cost comparison and cost control. It is not compatible with flexible budget procedures and taking decision in short time.
2. Two bin card system which is more suitable in small plants is not sensitive with the demand changes, overhead. It is suitable for low value items. Rarely it is suitable for production material because it does not make possible any record in stock on hand.
3. Abnormal material is charged to cost of production account. This way of treatment creates difficulty in comparison of cost of production for different times. It is also not compatible with cost principles.
4. Activity based costing technique requires absorption amount of time and cost to implement. It also requires a substantial commitment from

upper management and all levels of employees to be successful.

- 5. ABC as a costing technique used in JCF requires an environment for change, this may lead employees to resist its application. It also requires extensive education of employees at all levels about its principles and machines.**

CHAPTER NINE

FINDINGS AND RECOMMENDATIONS

- 9.1 Findings related to fertiliser and chemical industry of India and Jordan**
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FINDINGS AND RECOMMENDATIONS

The presentation of the findings has been made firstly for the industries separately consolidating both the countries and sectors followed by the findings related with all the industries and countries in combination. Suggestions for improving the situation have been prescribed after that. This chapter, at the end also highlights the directions for future research in this area which can be undertaken on the basis of this research study.

9.1 Findings Related to Fertiliser and Chemical Industry of India and Jordan

The main findings regarding CAP in the fertilizer and chemical industry of India and Jordan have been pointed out.

9.1.1 The fertiliser companies under study in both countries have maintained cost sheet to ascertain the cost of products for a particular period of time. They also classify the elements of cost sheet as prime cost, factory cost, work cost and cost of production. Cost sheet is a strength of the costing system being used in fertiliser and chemical industry in both countries, because, it helps in finding the total cost and cost per unit. It also helps the manufacturer to keep close watch and control over the cost of production. It also helps in probing the causes that are responsible for variation in costs. This enables the

management to take measures do away with the total cost increasing factors and conditions.

9.1.2 The private and public sector fertiliser companies of both countries use integrated cost accounting system for maintaining cost books for all plants and units operating under them. Integrated cost accounting system more suitable in this industry in both countries, because, it helps in avoiding duplication in recording transactions and also cost data are obtained easily. This also rules out the possibility of overlooking any expenses. They also use absorption costing as technique. But they do not use activity based costing which helps in allocating the overheads more accurately. They also do not use marginal costing technique which helps in taking managerial decision in short time and more compatible with flexible budget. Absorption costing technique is one of the weakness of the costing system used in fertiliser and chemical industry in both countries, because it is not compatible with flexible budget procedures and it is not helpful in taking managerial decisions. It also creates difficulty in cost comparison and cost control.

9.1.3 The public sector fertiliser and chemical companies in both countries use fixed and variable cost as a basis of cost classification, whereas private sector enterprises use direct and indirect cost for the purpose. The public sector in both countries use more than one basis for cost classification. In public sector

fertiliser enterprises of Jordan direct and indirect cost is used as a basis in addition to fixed and variable cost, whereas in India revenue and capital cost is used as a basis in addition to fixed and variable cost. The private sector fertiliser enterprises in India also use more than one basis for cost classification, i.e. direct and indirect cost in addition to fixed and variable cost. Fixed and variable cost classification is the strength of the cost accounting system, because it helps in proper estimation of indirect cost and in taking the decision about whether to make or buy.

- 9.1.4 The sampled private sector fertiliser companies of both countries apply the estimated rate per unit as a basis for absorption of selling and distribution overhead. The private sector companies in Jordan consider prime cost as a basis and their Indian counterparts consider estimated unit cost as a basis for factory overhead absorption. Moreover, public sector fertiliser companies in Jordan use prime cost as a basis for factory overhead absorption and the ones in India consider estimated unit cost. The public sector fertiliser enterprises in Jordan consider percentage on selling price per unit as a basis for absorption of selling and distribution overheads, but in India the estimated rate per unit is adopted for this purpose.

In the case of indirect cost allocation, private sector in Jordan considers cost of material consumed as a basis, but in India

both the direct allocation method and the machine hours worked were used as a basis. The public sector fertiliser companies in Jordan use direct allocation method as a basis for indirect cost allocation, but in India the cost of material consumed is used for this purpose.

- 9.1.5 The public sector fertiliser industry in both countries treat overtime wages in the same way by charging it to factory overhead account. However, the private sector fertiliser industry in Jordan treat overtime wages, as well as idle time by charging it to factory overhead accounts. This way of treatment creates difficulty in comparison of cost of production for different periods, but in India they charge it to profit and loss account. The abnormal loss of material are charged differently in public sector fertiliser companies but same treatment is made in private sector. The private sector fertiliser companies in both the countries treat the abnormal loss of material by charging it to cost of production account, but the public sector fertiliser enterprises of India charge abnormal loss of material to profit and loss account and those in Jordan to cost of production account. To charge different aspects of cost such as idle time, overtime wages and abnormal loss of material to cost of production or factory overhead accounts is one of the weakness of the cost accounting system being used in both countries because this way of treatment is not compatible with cost

principles and creates difficulty in comparison of cost of production over different periods. But to charge those aspects to profit and loss account is the strength of the costing system used, in both countries, because this way of treatment is compatible with cost principles and make the comparison of cost of production more meaningful.

9.1.6 The private sector fertiliser companies in both countries use ABC analysis for the purpose of inventory control. ABC analysis is one of the strength point of the cost accounting system being used in both countries because it helps in close and strict control of cost items specially high value items. In case of public sector fertiliser industry of Jordan, perpetual inventory system is used. This system more suitable because, it helps in avoiding dislocation of production, preparation of periodical profit and loss account and balance sheet. It also helps to keeping the accurate and up-to-date, records. The companies in India on the other hand use ABC analysis for the same purpose. All the sampled companies in both countries are using material issue analysis sheet for showing the value of material consumed during the production period with the exception being the private sector fertiliser enterprises of India. For the purpose of pricing input material, public sector in Jordan considers average price method, whereas in India it is "cost-price-of-each-lot" method. Moreover, private sector fertiliser industry in Jordan takes into

account cost price of each lot as a method of pricing input material, whereas in India, the average price method is considered for the same. Average price method is one of the strength point of the costing system used in both countries, because, in the period of heavy fluctuations in prices of materials, the average price method is very much of use as the fluctuations tend to be smoothened up by virtue of taking the average of prices of various lots in stock.

- 9.1.7 The companies under study in fertiliser industry in both countries apply budgetary control technique and prepare different types of budgets related to raw material, labour and overheads. Both the sectors of fertiliser industry apply flexible budget method as a basis for drawing various budgets except private sector in India use fixed budget method.

Flexible method is a strength of the cost accounting system being used in both countries, because it changes according to the changes in the level of activity or output. But fixed budget method is one of the weak point of the cost system used because it create difficulty in modifying the budget according to the changes in output or level of activity.

- 9.1.8 Public sector companies in both countries apply past record as a basis for setting material standards, union contracts for setting labour standards and future trend of prices for setting overhead standards. The public sector companies in Jordan considers

more than one basis for setting overhead standards like normal operating conditions and past records. In the case of setting labour efficiency standards, public sector in Jordan applies past performance records as a basis whereas its Indian counterparts consider time and motion study for the same purpose.

The private sector companies of fertiliser industry in both countries use the normal operating conditions and the past experience as a basis for setting labour standards, overhead standards and past performance record as a basis for setting labour efficiency standards. But in case of setting material standards, private sector fertiliser companies in Jordan takes into account scientific computations as a basis and those in India consider past records as the basis. The private sector companies in India also consider past record as the basis besides normal operating conditions for setting overhead standards.

Scientific computations and time and motion study as a basis for setting standards are the strength point in the costing system being applied in both countries. But past record performance is one of the weak point of the costing system, because this basis serves no purpose, unless past performance was excellent.

- 9.1.9 The public sector companies of fertiliser industry in both the countries calculate same type of variances related to raw material such as material price, material quantity and material yield; variances related to labour such as labour mix variance

and labour rate variance and variance related to overhead like capacity and efficiency variances.

As far as sales variances are concerned, the companies under study in both countries use the same variances like sales volume and sales price, but the periodicity of variance calculation is quarterly.

Private sector fertiliser industry in Jordan consider different type of variances related to labour like labour mix, idle time and labour rate variance but those in India consider only one type of variance known as labour mix variance. Sales mix variance is calculated only in private sector in Jordan and not in India. The variance calculation period in private sector in Jordan is half yearly and in private sector in India it is monthly.

9.2 Findings Related to Paper Industry of India and Jordan

9.2.1 The companies of paper industry under study in both countries prepare cost sheet with its main elements being prime cost, factory cost, work cost and cost of production. Cost sheet is one of the strength point of the costing system being used in paper industry in both countries, because, it helps in fixing up the selling price more accurately. It also provides a comparative study of current cost with the past cost.

9.2.2 The companies under study in both countries maintain an integrated cost accounting system for keeping cost books.

Integrated cost accounting system is suitable in this industry in both countries, because it helps in avoiding duplication of recording cost transactions and to avoid the possibility of overlooking an expense. They use absorption costing as a technique of costing. But they do not use activity-based-costing technique which helps in allocating overhead more accurately. They also do not use marginal costing system which helps in taking managerial decision in short time and more compatible with flexible budget system. Absorption costing technique is a weakness of the costing system being used in paper industry in both countries, because it is not compatible with flexible budget procedures and it is not helpful in taking managerial decision.

9.2.3 The public sector companies in both countries use the fixed and variable cost as a basis for cost classification. The private sector companies in paper industry in Jordan apply fixed and variable cost as a basis for cost classification, but those in India apply functional classification. Fixed and variable cost classification is the strength of the cost accounting system, because, it helps in proper estimation of indirect expenses, better control over cost items can be exercised and it also helps in taking decision about whether to make or to buy.

9.2.4 The private sector companies in Jordan use direct material cost as a basis for factory overhead absorption, but in India machine

hours are used as a basis. The public sector paper industry in Jordan and India apply direct material cost as a basis for overhead absorption. All the sampled companies in both sectors in Jordan use direct allocation method as a basis for indirect cost allocation while those in India consider the cost of material consumed as a basis. The private sector paper industry in both countries use estimated rate per unit as a basis for absorption of selling and distribution overheads. Moreover, the private sector paper industry in India uses another basis known as percentage on work cost for absorption of selling and distribution overheads. The public sector paper industry in Jordan use estimated rate per unit as a basis for absorption of selling and distribution overhead but those in India use percentage on selling price for the same.

- 9.2.5 Public sector paper industry in both countries treat the idle time by charging it to the factory overhead account. The private sector paper industry in both countries treat abnormal loss of material by charging it to cost of production account, whereas the public sector in both countries treat abnormal loss of material by charging it to profit and loss account.

The paper companies under study in Jordan treat overtime wages by charging it to the factory overhead account but those in India charge it to profit and loss account. The idle time is charged to factory overhead account in private sector companies

in Jordan and to profit and loss account in India. To charge different aspects of cost such as idle time, overtime, wages and abnormal loss of material to cost of production or factory overhead accounts is one of the weakness of the cost accounting system being used in both countries, because this way of treatment is not compatible with cost principles and creates difficulty in comparison of cost of production over different periods. But to charge those aspects to costing system used in both countries, because this way of treatment is compatible with cost principles and make the comparison of cost of production more meaningful.

- 9.2.6 For the purpose of inventory control, public sector paper industry Jordan uses two bin card system and those in India use ABC analysis technique. Two bin card system is a weakness of the costing system being used in both countries, because it is suitable for low value item and it is not sensitive to change in demand or lead time. It also not suitable in large concern like public sector paper industry in Jordan. ABC analysis is one of the strength point of costing system being used in both countries. Because it helps in close and strict control over cost items specially high value items. The private sector companies in Jordan consider ABC analysis as a technique for inventory control while those in India consider Economic order quantity (EOQ). All the sampled enterprises in paper industry in both

countries maintain material issue analysis sheet which show the value of material consumed during the production period.

For the purpose of pricing input material, public sector consider average price method in Jordan and cost price of each lot in India. The private sector in Jordan consider average price method. Those in India consider market price method as a method of pricing input material. Average price method is a strength of the costing system being used in both countries, because in the period of heavy fluctuations in prices of materials, the average price method is very much of use as the fluctuations tend to be smoothened up by virtue of taking the average of prices of various lots in stock.

9.2.7 All the companies under study in paper industry in both countries use budgetary control technique and prepare various types of budget such as raw material budget, labour budget, overhead budget. All of these budgets are prepared on the basis of flexible budget method. But the revision period of the flexible budget varies in both sectors and in both countries. In public sector companies it is quarterly in Jordan and monthly in India while in private sector companies is half yearly in Jordan and quarterly in India. Flexible budget system is a strength of cost accounting in both countries, because it can be modify according to the change in output or level of activity.

9.2.8 Private sector paper industry in both the countries use past

performance as a basis for setting standards related to raw material and labour efficiency. Overhead standards are set on the basis of past records in public sector companies in both countries. For the purpose of setting standards for material, public sector companies in Jordan consider past records as a basis and the test run basis in India. Public sector paper industry in Jordan takes help from past experience as base for setting labour standards while in India union contracts are used for the same.

Private sector companies of paper industry in Jordan use normal operating conditions as a basis for setting labour standards and overhead standards. On the other hand, private sector companies of paper industry in India use union contracts as a basis for setting labour standards and past records as a basis for setting overhead standards.

Public sector companies in Jordan use time and motion study for setting labour efficiency standards while those in India use past performance records. Test run basis and time and motion study are strength point in the costing system being applied in both countries but past record performance is one of the weakness point of the costing system, because this basis serves no purpose, unless past performance was excellent.

9.2.9 A number of variances such as material price, material quantity, material yield, labour rate, capacity variance, efficiency variance,

sales volume, sales price are considered in private sector enterprises in both countries. Public sector enterprises in both countries also consider many other variances such as material yield, sales volume, labour mix, and efficiency variance.

9.3 Findings Related to Cement Industry of India and Jordan

9.3.1 The public sector cement companies in both countries apply cost sheet statement. They classify the elements of cost sheet as prime cost, factory cost, work cost, and cost of production. Cost sheet is a strength of the cost accounting system being used in both countries, because it helps to make a comparative study of the various elements of current cost with past cost and also helps in finding out the causes of variation in cost. It also helps the manufacturer to keep close watch and control over the cost of production.

9.3.2 The public sector companies in both countries use fixed and variable cost as a basis for cost classification. Fixed and variable cost classification is a strength of the costing system applied in both countries. Because it helps in proper estimation of indirect cost and taking decisions about whether to make or buy. It also helps in better control of cost items. The public sector cement companies in Jordan use non-integrated cost accounting system while in India integrated cost system for keeping cost books are used. Integrated cost accounting system to some extent is suitable. But non-integrated cost accounting

system is more suitable in industries in both countries. Because, it helps in determining the values of closing stocks and work in progress without delay and helps the management in policy formulation as this ledger summarises all detailed information regarding cost in subsidiary records. It also provides a mechanism for proper control over materials, labour and overheads.

9.3.3 The public sector cement companies in both countries use absorption costing and activity based costing as a technique of costing. Activity-based costing is more suitable in this industry in both countries, because it helps in accurate allocation of overheads and performance measurement process. Absorption costing technique is one of the weakness point of the cost accounting system used in both countries because it create difficulty in cost comparison and cost control, it also not helpful in taking management decision. It also not compatible with flexible budget procedures.

9.3.4 The companies of cement industry under study in both countries treat the overtime wages and idle time in the same way by charging it to profit and loss account. This way of treatment is more suitable in industries in both countries, because, it is compatible with cost principles and make the comparison of cost of production for different periods more meaningful.

9.3.5 The public sector companies of cement industry in Jordan apply

machine hours and direct labour as a basis for absorption of factory overhead but in India is estimated unit cost is used for the same purpose. The public sector cement industry in both countries apply direct allocation method as a basis of allocation of indirect costs to various departments and percentages on selling price per unit as a basis for absorption of selling and distribution overheads.

- 9.3.6 For the purpose of inventory control, public sector cement industry in Jordan use two bin card system while in India ABC analysis is used. ABC analysis is more suitable in industries in both countries, because, it helps in close and strict control over cost item particularly high value items. It also helps in measuring the cost significance of each item of material. Two bin card system is not suitable in large enterprises such public sector cement industry in Jordan. Because it is not sensitive to changes in demand or lead time and it is rarely suitable for production material because, it does not make any recording of stocks on hand. All the sampled enterprises of cement industry in both countries maintained material issue analysis sheet which show the value of material consumed during the product period. Public sector cement industry in both countries apply average price method is a strength of the costing system being used in both countries, because in the period of heavy fluctuations in prices of material, the average price method is very much of

use as the fluctuations tend to be smoothened up by virtue of taking the average of price of various lots in stock.

9.3.7 All the sampled companies of cement industry in both the countries apply budgetary control technique as a method of control and planning. They also prepare various types of budgets related to raw material, labour, and overheads. Flexible budget method is used in both countries as a basis for designing various budgets. Moreover, the revision period of flexible budget is monthly in both companies in both countries. Flexible budget method is a strength of costing system being used in both countries, because it help to modifying according to the changes in output or level of activity.

9.3.8 Public sector companies of cement industry in both countries use past records as a basis for setting overhead standards. Public sector companies in India apply scientific computation as a basis for setting raw material standards, normal operating conditions as a basis for setting labour standard and time and motion study as a basis for setting labour efficiency standards, but in Jordan, the company uses past records as a basis for setting raw material standards, past experience as a basis for setting labour standards and past performance records as a basis for setting labour efficiency standards. Time and motion study is a strength point of the cost accounting system applied in both countries. Past record is one of the weakness point of

/cost accounting system being used in both countries, because, this basis serves, no purposes, unless the past performance was excellent.

9.3.9 A number of variances related to raw material such as material price, material quantity, material yield; variances related to labour such as labour mix, variances related to overhead like efficiency variance and capacity variance, calender variance are set. As far as sales variances as concerned the companies under study in both countries apply the same variances , sales prices, sales mix variance is considered only by public sector cement company of Jordan and not in India. The periodicity of calculation of different variances are monthly in both the countries.

9.4 Findings Related to All Sampled Industrial Companies of India and Jordan

The summary of the findings of CAP which are common in all the sampled companies of both India and Jordan have been outlined below:

9.4.1 All the sampled companies under study in both countries maintain cost sheet to ascertain the cost of products for a particular period of time. They classify the elements of cost sheet as prime cost, factory cost, work cost and cost of production. Cost sheet is helpful in disclosing the total cost and the cost per unit of the units produced during a given period. This also

enable the manufacturers to keep close watch and control over the cost of production.

- 9.4.2** Most of the companies under study in both countries use integrated cost accounting system for keeping cost books, except public sector cement industry in Jordan which uses non-integrated cost-system. Integrated cost accounting system help to avoid duplication in recording accounting transactions and also cost data can be obtained quickly. The sampled enterprises in both countries apply absorption costing technique as a technique of costing.

In addition to the above, activity-based-costing technique is applied in public sector cement industry of both countries.

- 9.4.3** Most of the companies under study in both countries apply fixed and variable cost as a basis for cost classification, except those in private sector fertiliser industry in India which use direct and indirect cost as this basis. Fixed and variable cost bases help to make clear distinction between product and period cost and help in estimating indirect expenses.

- 9.4.4** Most of the enterprises under study in both countries apply the estimated rate per unit as a basis for absorption of selling and distribution overheads. Whereas public sector fertiliser industries in Jordan and India apply percentage on selling price per unit as a basis for the same purpose.

9.4.5 Most of the companies under study in both countries use prime cost and estimated unit cost as a basis of absorption for factory overhead. But those in private and public sector paper industry in Jordan, apply direct material cost as a basis for this purpose. Public sector cement industry in Jordan uses machine hours as the basis for absorption of factory overhead.

9.4.6 Most of the companies in Jordan treat overtime wages, idle time by charging to cost of production account. Whereas most of the companies in India treat them by charging to profit and loss account.

In addition to the above, all the private sector companies in both countries treat abnormal loss of material by charging it to cost of production account whereas, those in public sector in both countries treat it by charging it to profit and loss account. Charging some aspects of cost like abnormal loss of material, idle time and overtime wages to cost of production account, creates difficulty in comparison of the cost of production of current year with previous ones.

9.4.7 Most of the enterprises under study in both countries apply ABC analysis as a technique for inventory control, whereas public sector cement industry and public sector paper industry in Jordan use two bin card system as a technique for inventory control. Public sector fertiliser companies in Jordan apply perpetual inventory system for the same purpose. Most of the

companies in both countries use material issue analysis sheet to show the value of material consumed during the production period. Most of the companies in both countries use average price method and price of each lot method for pricing input material. ABC analysis helps to measure the cost significance of each item of material and also investment in inventory is reduced to the minimum possible level. Also a strict control is exercised. In case of perpetual inventory system, dislocation of production is avoided, and periodical profit and loss account and balance sheet is prepared easily.

9.4.8 All the sampled enterprises under study in both countries apply budgetary control technique and prepare various types of budgets, such as raw material budget, labour budget and overhead budget. All the companies use flexible budget method as a basis for preparing different budgets, except private sector fertiliser industry in India which use fixed budget method. In most of the companies under study in both countries, the flexible budget is revised within a short time, either one month or quarter of a year.

9.4.8 . Most of the enterprises under study use different bases like; past record, union contracts, normal operational conditions, past experience as a basis for setting different standards related to raw material, labour, overheads, labour efficiency. Past record performance, serves no purpose, until and unless past

performance was excellent.

9.4.10 Most of the companies under study in both countries calculate and consider a number of variances related to raw material such as material price, material quantity, and material yield variances; variances related to labour such as labour mix and labour rate; variances related to overhead such as efficiency variance and capacity variance. As far as sales variances are concerned, the companies under study in both countries apply the same variances like sales mix, sales volume, and sales price. The period of revising and calculating different variances is short generally one month in both the countries.

9.5 Suggestions and Recommendations

The analysis and findings of the study clearly indicate that in both the countries, the cost accounting is practiced in such a way that require some improvements and modifications. In the following part of this chapter, some suggestions have been made for improving the situation. For the purpose of systematic presentation these suggestions are being placed in three sections. First section deals with those which are based on case analysis and are equally applicable for both the countries. The second and third section deals with those suggestions which are specific for Indian companies and Jordanian corporations respectively. In the last section some other suggestions have also been put forward.

9.5.1 Suggestions for improving the applications of cost accounting practices (CAP) in both Indian companies and Jordanian companies.

- (1) The marginal costing technique should be used where only absorption costing is applied. Because it is a better tool for decision making in short run period. This technique easily help in establishing cost-volume-profit relationship. Data needed for profit planning purposes are readily obtained with the help of this system. In a way it is more compatible with flexible budgeting system.**
- (2) The non-integrated accounting system or ledger costing system should be adopted as this system is more suitable in large enterprises like public sector cement industry, paper and fertiliser and chemical industry in India and public sector fertiliser and chemical and paper industry in Jordan. The accounts in this system are numerous like subsidiary ledgers such as stores ledger, work-in-progress, ledger, finished goods, ledger etc. This system helps management in policy formulation as this ledger summarises all detailed information regarding cost in subsidiary records. Moreover, it provides a proper mechanism for control over materials, labour and overhead. In addition the cost ledger helps in determining the values of closing stocks and work in progress without any delay and make possible the prompt preparation of profit and loss account and balance sheet**

of regular intervals.

- (3) A scientific computation for setting different standards like test-run-basis for raw material standards and time and motion study for labour and labour efficiency standards should be applied in addition to past records and normal operating conditions.
- (4) Activity-based-based costing as system of costing should be adopted in Indian and Jordanian companies particularly in fertiliser and chemical industry and paper industry. This system can help in determining price more precisely, improves the performance measurement and also is more accurate method for overhead allocations. But it is more costly as compared to the other system, so that significance and importance of this system should be introduced to the users before its application. By educating them, the resistance in its application may be reduced.

9.5.2 Suggestions and Recommendations for CAP in Indian enterprises

- (1) Flexible budget should be adopted in private sector chemical and fertiliser industry in India. This method helps in modifying the budget according to the changes in output or level of activity for the purpose of evaluation and control.
- (2) Either fixed and variable or direct and indirect or capital and revenue should only be the basis for cost classification. It is better to adopt only one basis rather than many for cost

classification in both the sectors of Indian fertiliser and chemical industry. This will be suitable because the sector applies multiple basis for the purpose. Similar recommendation is for selling distribution overhead in private sector paper industry in India.

- (3) Fixed and variable cost as a basis for cost classification should be adopted in private sector paper industry in India. This basis help in proper estimation of indirect cost, better control over expenses and it helps in taking decision of whether to make or to buy.
- (4) Abnormal loss of raw material should be charged to profit and loss account in private sector paper industry and private sector chemical and fertiliser industry. This way of treatment will make the comparison of cost of production over different periods more meaningful. Further, similar, it is compatible with cost principles, also idle time should also be charged to profit and loss account in public sector paper industry.
- (5) Average price method for pricing input material should be applied in private and public sector fertiliser and chemical industry and private and public sector paper industry in India. This method helps in the period of heavy fluctuations in material prices by smoothening the price of various lots.

9.5.3 Suggestions and Recommendations for CAP in Jordanian enterprises

- (1) Overtime wages, idle time and abnormal loss of material should be charged to profit and loss account specially in paper industry and chemical and fertiliser industry in Jordanian enterprises. This way of treatment make the comparison of cost of production for different periods more meaningful and it is compatible with cost principles also.**
- (2) Multiple basis of classification of cost and overheads have been identified in Jordanian companies. This makes sometimes inter-firm comparison more difficult. It is suggested that the basis of classification and allocation of cost should be one in case of public sector fertiliser and chemical industries. The case of public sector cement industry is also similar as far as factory overhead is concerned and the recommendation in this respect also for one method.**
- (3) ABC analysis as a technique for inventory control should be adopted in private and public sector paper industry and public sector cement industry in Jordan. ABC analysis helps in close and strict control over the cost items and helps in measuring the cost significance of each item of material.**
- (4) Fixed and variable cost as a basis for cost classification should be adopted in private sector fertiliser and chemical industries**

in Jordan. This will help in proper estimation of indirect cost. It will also help in taking decision related to make or buy.

9.5.4 Other suggestions

- (1) A separate cost accounting department or section should be created. The professionally qualified cost accountant should be appointed to lead this section. This is being suggested because in most of the companies cost accounting work is undertaken by the accounts and finance sections. Due to this the accounts department is overloaded and costing work also suffers.
- (2) Special programmes should be introduced to educate higher level executives in the organisation so that they should support the cost accounting system. Mainly, the importance of cost accounting in decision making should be emphasised in these programmes. These programmes may take the form of seminar, conference and should be organised on periodic basis.
- (3) The application of computer for solving the cost accounting problem is also suggested. Whenever, there is change in the condition of working of the organisation, its resultant change can easily and promptly be seen with the help of computer. This will facilitate prompt decision making.

9.6 Direction for Future Research

- (1) A separate study covering more cost accounting practices like batch costing, process costing, operating costing in different

industries may be conducted in both the countries. The focus should be on medium and small scale industries.

- (2) The detailed study may also be conducted on the method of determination of standards for material, labour and overheads in different industry in both the countries.
- (3) There is a need to study in detail the activity based costing its technique and applications in different industries. The identification and nature of cost drivers should be studied with special emphasis.
- (4) The study may also be conducted regarding the impact of different rules, regulations and legislations in vogue in different countries on the cost accounting practices in these countries.
- (5) Cost accounting is being used as a control mechanism to keep a watch and check on the costs. The application of cost accounting practices also lead to behavioural implication. A comparative study in two countries may be undertaken by taking the educational, cultural, ownership, scale and other variables into account.

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Questionnaire For Cost Accounting Practices

1. Name of the organisation
Head office (city)
2. To which of the following sector your organisation belong to:
i) Private
ii) Public
3. Nature of product manufacture
Main.....
Joint Product
By-product

4. No. of plants/Units ()

Following questions are related to cost accounting practices. You are requested to reply these questions in the light of the practices applied in your organisation. Please tick ()

1. Do you prepare cost sheet.
Yes () No ()
- 1.1 If yes, what are the main element of the cost sheet. Please tick more than one alternatives if needed.
Prime cost ()
Factory cost ()
Work cost ()
Cost of production ()
- 1.2 If no, please indicate other method which is used to ascertain cost.
2. On which basis you classify cost elements for costing purposes.
a) Fixed and variable cost.
b) Direct and indirect cost
c) Revenue and capital expenditure
d) Functional classification
e) Any other (please specify)

3. Under which of the following systems you keep your cost books.
- a) Integrated cost accounting
 - b) Non integrated
 - c) Others (please specify)
4. Which of the following methods do you follow in pricing input material.
- a) Based on cost price of each lot
 - b) Average price method
 - c) Market price
 - d) Other (please specify)
5. Do you use material issue analysis sheet?
- Yes () No ()
6. Which of the following techniques do you use for inventory control.
- | | | |
|-------------------------------|------------|-----------|
| a) ABC analysis | Yes () | No () |
| b) Two bin system | Yes () | No () |
| c) EOQ | Yes () | No () |
| d) Any other (please specify) | | |
7. How you treat abnormal loss of material in your costing books?
8. On which basis do you absorb the factory overhead.
- | | |
|-------------------------------|--------|
| a) Machine hour | () |
| b) Unit cost | () |
| c) Material cost | () |
| d) Labour cost | () |
| e) Prime cost | () |
| f) Labour hour | () |
| g) Any other (please specify) | |
9. Please mention basis of the allocation of indirect cost to the various departments.

- a) Direct allocation ()
 - b) Cost of direct material consumed ()
 - c) Machine hour worked ()
 - d) Any other ()
10. What is the basis of absorbing the selling and distribution overhead.
- a) Rate per unit ()
 - b) Percentage on works cost ()
 - c) Percentage on selling price of each unit ()
 - d) All of the above ()
11. What is the method of treating overtime wages.
- a) Charged to profit and loss account ()
 - b) charged to factory overhead ()
 - c) Recovered by inflating wage rate ()
 - d) Any other (please specify) ()
12. How do you treat the idle time cost of machine caused due to the non-availability of raw materials.
- a) Charged to P/L account
 - b) Charged to factory overhead
 - c) Recovered by inflating the wage rate
 - d) Any (please specify)
13. Which of the following techniques of costing you use in your company.
- a) Marginal costing ()
 - b) Absorption costing ()
14. If you use marginal costing technique. Do you use it.
- a) Independently, or
 - b) In conjunction with other
15. On what basis you evaluate work in progress and finished goods under marginal costing.

- a) Variable cost
 - b) Fixed and variable
 - c) Fixed excluded
 - d) Any other (please specify)
16. In what way do you treat semi-variable costs under marginal costing.
- a) As part of product cost
 - b) Segregated into fixed and variable cost and treated accordingly.
 - c) As part of factory overhead
 - d) Any other (please specify)
17. In case your company manufactures joint product and by-product also which of the following bases do you use for differentiating joint product and by-product.
- a) Relative sales value
 - b) Profit pattern desired
 - c) All of the above
 - d) Any other (please specify)
18. Do you use budgetary control.
- Yes () No ()
- If no please do question no.22
19. If yes, which of the following budgets do you prepare.
- a) Material budget
 - b) Labour budget
 - c) Overhead budget
 - d) Others (please specify)
20. Which of the following methods your company follow in preparing budgets.
- a) Fixed budget method ()
 - b) Flexible budget method ()
 - c) Others (please specify)

21. In case your company use flexible budget, what is the period of revising estimate.
- a) Monthly ()
 - b) Quarterly ()
 - c) Half yearly ()
22. Do you calculate variances.
- Yes () No ()
- If yes, which of the following variance do you calculate
- a) Raw materials ()
 - b) Labour cost ()
 - c) Overheads ()
23. Do you calculate material variance for the following.
- a) Material price cost Yes / No
 - b) Material quantity cost Yes / No
 - c) Material yield cost Yes / No
24. On what basis do you set standards for material.
- a) Test run basis ()
 - b) Mathematical or scientific computation ()
 - c) Past record basis ()
 - d) Any other (please specify)
25. On what basis do you fix material price standard.
- a) Current price ()
 - b) Past average price ()
 - c) Market price ()
 - d) Any other (please specify)
26. How do you determine labour efficiency standards?
- a) By making time and motion study ()
 - b) Past performance records ()
 - c) Any other (please specify)
27. Do you determine normal and abnormal idle time of labour.
- Yes / No
28. Do you calculate labour variance for the following.
- a) Labour rate variance Yes / No
 - b) Idle time variance Yes / No
 - c) Labour mix variance Yes / No
29. On what basis does your company set labour rate standards.
- a) Normal operating conditions ()
 - b) Estimated rate ()
 - c) Union contracts ()
 - d) past experience ()
 - e) Any other (please specify) ()

30. Do you calculate, overhead variances for.
- | | |
|-------------------------|----------|
| a) Capacity variances | Yes / No |
| b) Efficiency variances | Yes / No |
| c) Calender variances | Yes / No |
31. On what basis does your company set overhead rate standard.
- | | |
|--------------------------------|--------|
| a) Past records | () |
| b) Future trend of prices | () |
| c) Normal operating conditions | () |
| d) a + b | () |
32. If you calculate variances, what is its periodicity.
- | | |
|--------------------------|--------|
| a) Every monthly | () |
| b) After every quarterly | () |
| c) Half yearly | () |
| d) Yearly | () |
33. Do you calculate sales variances for the following.
- | | |
|-----------------|----------|
| a) Sales volume | Yes / No |
| b) Sales mix | Yes / No |
| c) Sales price | Yes / No |
34. Do you use activity based costing (ABC) Yes / No
35. If yes, how many levels of activities do you consider for ABC.
36. Do you design ABC hierarchy. Yes / No
37. How do you select cost drivers?
38. What is the most important reason for using ABC
- | | |
|---|--------|
| a) For better understanding of the overhead cost | () |
| b) For controlling and managing cost by understanding the events and activities | () |
| c) For assessing the implications of all business costs for decision making purposes. | () |
| d) Any other (please specify) | |

Thank you very much for sparing your valuable time and helping in the conduct of the survey.

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

السيد المحترم | _____

المدير المالي لشركة : _____

تحية طيبة وبعد ،،

اتوجه اليكم بالتقدير والاحترام راجيا تعاونكم لانجاح هذه الدراسة الميدانية التي تهتم القطاع الصناعي في الاردن حيث يقوم الطالب رياض مصلح الشقاحين باعداد رسالة الدكتوراه في المحاسبه سنتناول ممارسات محاسبة التكاليف في الشركات الصناعية المساهمة العامة الاردنيه وهذه الاستبانة تشكل جزء من رسالة الدكتوراه في كلية الدراسات الاداريه والبحث في جامعة عليقار الاسلاميه ، الهند .

ويحتاج لذلك دراسة بعض النواحي المتعلقة بشركتكم الموقره .

ونود ان نؤكد لكم على ان هذه المعلومات سوف تستخدم لاغراض البحث العلمي فقط .

وحيث اننا نعهد بكم الاستعداد الكامل لمؤازره وتشجيع البحث العلمي لبناء هذا البلد مما يعود بالنفع والخير على مجتمعنا .

ودمتم اهلا للعاون والمساعده .

الباحث : رياض مصلح الشقاحين

كلية الدراسات الاداريه والبحث

جامعة عليقار الاسلاميه الهند .

اولا : معلومات عامه عن الشركة ونشاطها الانتاجي :

١- اسم الشركة وعنوانها : --

المكتب الرئيسي (المدينه) : -----

٢- طبيعة الانتاج المصنع .

أ - منتج رئيسي ()

ب - منتج مشترك ()

ج - منتج مشتق ()

٣- عدد المصانع / الوحدات () .

٤- اساس ونوع التكنولوجيا المستخدمه في التصنيع :

٥- حجم المبيعات الاجماليه للسنوات الثلاث الاخيره :

ثانيا : معلومات تتعلق بممارسات وتطبيقات محاسبه التكاليف

ارجو منكم ان تجيبوا على هذه الاسئله بوضع اشارة صح في القوس المقابل لكل سؤال وفي

المكان المناسب في ضوء الممارسات المتبعه والمطبقه في شركتكم .

١- هل تحضر كشف التكلفة

، نعم () لا ()

١- أ- ان كان جواب السؤال رقم (١) نعم ، فما هي العناصر الرئيسيه لكشف التكلفة .

(من فضلك ضع اشارة صح عند اكثر من اختيار اذا كان هناك ضرورة) .

- تكلفة اوليه رئيسيه () .

- تكلفة المصنع () .

- تكلفة العمل () .

- تكلفة الانتاج () .

١-ب- اذا كانت اجابة السؤال رقم (١) لا فضلا بين لنا اي طريقة تستخدمها في تعيين التكلفة :

٢- على اي اساس يتم تسنيق عناصر التكلفة في سجلات تكاليف الشركة .

- أ - تكاليف مباشره وتكاليف غير مباشره () .
- ب - تكاليف ثابتة وتكاليف متغيرة () .
- ج - تكاليف ايراديه وتكاليف رأسماليه () .
- د - تكاليف انتاجيه وتكاليف اداريه () .
- هـ - اخرى (حدد) .

٣- تسجل بيانات التكاليف في الشركة طبقا للطريقة التالية :

- أ - طريقة الاندماج (بحيث تخصص مجموعه دفترية واحده تخدم اهداف كلا من المحاسبه الماليه ومحاسبه التكاليف) .
- ب - طريقة الانفصال (حيث تصمم مجموعتان دفتريان مستقلتان احدهما تخدم اهداف المحاسبه الماليه والاخرى تخدم اهداف محاسبه التكاليف .
- ج - اخرى (حدد) .

٤- بأي من الطرق التالية يتم تسعير المواد الداخلة في الانتاج :

- أ - على اساس سعر التكلفة لكل مجموعه () .
- ب - على اساس طريقة متوسط السعر () .
- ج - على اساس سعر السوق () .
- د - على اساس السعر المفترض () .
- هـ - اخرى (حدد) -----

٥- هل تستخدم كشف اصدار المواد : (نعم) (لا) .

٦- اي من الطرق التاليه تستخدم في نظام الرقابه على المخزون :

أ- طريقة التحليل الانبائيه (نظام الجرد المجزء) (A B C)

() نعم () لا

ب- الطريقه الثنائيه المزدوجه () نعم () لا .

ج- كمية الطلب الاقتصايه (E . O . Q)

() نعم () لا

د- اخرى (حدد) -----

٧- كيف يتم معالجة الخسارة غير العاديه في حساب تكلفة المواد ؟

٨- على اي اسا يتم تحميل التكاليف الصناعيه الغير مباشره .

أ' على اساس ساعات عمل الاله () .

ب- على اساس تكلفة الوحده () .

ج- على اساس تكلفة المواد () .

د- على اساس تكلفة العمل () .

هـ- على اساس تكلفة الاوليه () .

و- على اساس ساعات العمل () .

ز- اخرى (حدد) -----

٩- على اي اساس يتم توزيع (تحميل) التكاليف الصناعيه الغير مباشره للمراكز الاخرى .

أ - على اساس التوزيع المباشر () .

ب- على اساس تكلفة المواد المستهلكه في كل مركز () .

ج- على اساس ساعات عمل الاله () .

د- اخرى (حدد) -----

١٠- على اي اساس يتم تحميل تكاليف المبيعات والتوزيع الغير مباشره .

- أ - على اساس المعدل لكل وحده . ()
- ب- كنسبة مئوية من تكلفة العمل . ()
- ج- كنسبة مئوية من سعر البيع لكل وحده . ()
- د- جميع ما ذكر . ()

١١- باي من الطرق التاليه يتم معالجة الاجور الاضافيه ؟

- أ - التحميل الى حساب الارباح والخسائر . ()
- ب- التحميل الى حساب التكاليف الصناعيه غير مباشره . ()
- ج- اخرى (حدد) -----

١٢- كيف يتم معالجة تكلفة وقت تعطل الآله نتيجة عدم توفر المواد الخام ؟

- أ - التحميل الى حساب الارباح والخسائر . ()
- ب- التحميل الى حساب التكاليف الصناعيه غير المباشره . ()
- ج- اخرى (حدد) -----

١٣- كيف يتم قياس انتاجية اليد العامله ؟

- أ - بمقارنه المنتجات الاجماليه مع ساعات عمل العمال . ()
- ب- بمقارنة القيمة المضافه للانتاج مع تكاليف الاجور الكليه . ()
- ج- بمقارنة الوقت الفعلي مع الوقت المعياري . ()
- د- اخرى (حدد) -----

١٤- اي من اساليب التكاليف التاليه تستخدمها شركتكم

- أ- نظام التكلفة الحديه . ()
- ب- نظام التكلفة الكليه . ()

١٥- اذا كنت تستخدم اسلوب التكلفة الحديه هل تستخدمه بشكل :

- أ- مستقل . ()
- ب- مع اساليب تكاليف اخرى . ()

١٦- على أي من الأسس التالية يتم تقييم أعمال تحت التنفيذ والأعمال الجاهزة :

- أ- تكلفة متغيره . ()
- ب- تكلفه ثابتة وتكلفه متغيره . ()
- ج- استثناء التكاليف الثابتة . ()
- د- أخرى (حدد) -----

١٧- بأي طريقه يتم معالجة التكاليف شبه المتغيره .

- أ- الجزء من تكلفة الانتاج . ()
- ب- بفصل التكاليف الثابتة والمتغيره ومعالجة كل منهما على حده . ()
- ج- كجزء من تكاليف التصنيع غير المباشره . ()
- د- أخرى (حدد) -----

١٨- أي من الأساليب التالية تستخدم في تسعير المنتجات الرئيسييه للشركة .

- أ - التكلفة المديه . ()
- ب . التكلفة الكليه . ()

١٩- في حالة ان شركتكم تنتج منتجات مشتركه ومنتجات مشتقه على أي من الاسس

التاليه يتم تمييز المنتج المشترك من المنتج المشتق .

- أ - على اساس قيمة المبيعات النسبيه . ()
- ب- على اساس الربح المخطط . ()
- ج- جميع ما ذكر . ()
- د- أخرى (حدد) -----

٢٠- هل تتبع الشركة سياسة اعداد الموازنات التخطيطيه (التقديرية)

- () نعم
- () لا

- اذا كان الاجابة لا فانتقل الى السؤال رقم (٢٤) .

٢١- إذا كانت الإجابة نعم فاي من الموازنات التقديرية التالية تتبع الشركة

- أ - ميزانية تقديرية للمواد . ()
- ب- ميزانية تقديرية للاجور . ()
- ج- ميزانية تقديرية للمصاريف والنفقات غير المباشره . ()
- د- اخرى (حدد) .

٢٢- اي من الطرق التالية تتبع الشركة في اعداد الموازنات التقديرية

- أ - الموازنات الساكنه فقط لتوضيح تقديرات النفقات عند مستوى واحد من النشاط ()
- ب- الموازنات المرنة (لتوضيح تقديرات النفقات عند مستويات مختلفه من النشاط , ()
- ج- اخرى (حدد) -----

٢٣- في حالة ان الشركة تستخدم الموازنات المرنة ماهي المدة الزمنية لمراجعة التقديرات المفترضه مسبقا .

- أ - شهرية . ()
- ب- ربع شهرية . ()
- ج- نصف سنويه . ()

٢٤- هل تتبع الشركة سياسة تحليل الانحرافات

- () نعم () لا

إذا كانت الإجابة نعم هل يتم تحلي انحرافات كلا من

- أ - تكلفة المواد () نعم () لا
- ب- تكلفة العماله () نعم () لا
- ج- تكلفة النفقات الصناعيه غير المباشره () نعم () لا

٢٥- كيف يتم تحديد تكاليف المعياريه في الشركة

- أ - على اساس معدل الاداء في الماضي . ()
- ب- على اساس مثالي . ()
- ج- على اساس تجريبي . ()
- د- اخرى (حدد) ----- .

٢٦- هل تتبع الشركة سياسة تحليل الانحرافات المواد لكل من

- أ - تكلفة سعر المواد () نعم ()
ب- تكلفة كمية المواد . ()
ج- تكلفة انتاج المواد . ()

٢٧- على اي اساس يتم وضع التكاليف المعيارية للمواد

- أ - اساس السجلات الماضية للتكاليف . ()
ب- حسابات علميه او رياضيه . ()
ج- اخرى (حدد) -----

٢٨- اي من الاسس تتبع الشركة تحديد السعر المعياري للمواد

- أ - السعر الحالي . ()
ب- متوسط السعر الماضي . ()
ج- سعر السوق . ()
د- السعر المتوقع . ()
هـ- اخرى (حدد) -----

٢٩- اذا كانت الشركة تتبع سياسة السعر المتوقع المعياري اي الطرق التاليه تتبع

الشركة في تحدد السعر المتوقع

- أ - التنبؤ الاحصائي . ()
ب- عقود الشراء طويله الاجل . ()
ج- سعر الشراء لطلبات الشراء الحديثه . ()
د- اخرى (حدد) -----

٣٠- كيف يتم تحديد معايير انحراف كفاءة العمل ؟

- أ - عن طريق دراسة الوقت والحركة . ()
ب- معدل سجلات الاداء الماضيه . ()
ج- اخرى (حدد) -----

٣١- هل يتم تحديد وقت التعطيل الطبيعي والغير طبيعي للعماله

() نعم () لا

٣٢- اذا كانت الاجابة نعم كيف يتم معالجة وقت التعطيل الطبيعي الغير طبيعي في حسابات التكاليف ؟

٣٣- هل تتبع الشركة سياسة تحليل انحرافات العمل لكلا من :

- أ - انحراف معدل الاجور . ()
ب- انحراف وقت التعطيل . ()
ج- انحراف مريج العمل . ()
د- اخرى (حدد) -----

٣٤- اي من السياسات التاليه تتبع الشركة في وضع معايير اجور العمل ؟

- أ - ظروف التشغيل الطبيعیه . ()
ب- الاجور المقدره . ()
ج- العقود الاتحاديه . ()
د- الخبرات السابقه . ()
هـ- اخرى (حدد) -----

٣٥- هل تتبع الشركة تحليل انحرافات التكاليف الصناعيه غير المباشره لكل من

- أ - انحرافات الطاقه الانتاجيه () نعم () لا
ب- انحرافات الكفاءه () نعم () لا
ج- الانحرافات التقويميه () نعم () لا

٣٦- اي من الطرق التالية تتبع الشركة عند تحديد معايير التكاليف الصناعية غير المباشرة

- أ- سجلات التكاليف الماضية () .
- ب- الاتجاهات المستقبلية للأسعار () .
- ج- ظروف التشغيل الطبيعية () .
- د- أ + ب () .

٣٧- ماهي الفترة التي تتبعها الشركة في مراجعة وتجديد المعايير المختلفة

٣٨- اذا كانت الشركة تتبع سياسة تحليل الانحرافات ماهي الفترة الدورية لتحليل الانحرافات

- أ- شهريه () .
- ب- ربع سنويه () .
- ج- نصف سنويه () .
- د- سنويه () .

٣٩- هل يتم تحليل انحرافات المبيعات لكل من

- أ - حجم المبيعات () نعم () لا
- ب- مزيج المبيعات () نعم () لا
- ج- سعر المبيعات () نعم () لا

٤٠- هل تتبع الشركة سياسة احتساب التكلفة على اساس النشاط

- () نعم () لا

اذا كانت الاجابة لا فانتقل الى سؤال رقم (٤٥)

٤١- اذا كانت اجابة السؤال السابق نعم ، كم مستوى من النشاطات يؤخذ بعين الاعتبار

عند اتباع هذا الاسلوب ؟

٤٢- هل تقوم الشركة بتصميم هيكل نظام التكلفة على اساس النشاط

() نعم () لا

٤٣- كيف يتم اختيار موجهات التكلفة عند استخدام طريقه التكلفة على اساس النشاط ؟

٤٤- ماهي الاسباب الدافعه الى ضرورة استخدام طريقة التكلفة على اساس النشاط ؟

أ - استيعاب دفعهم افضل لتكاليف التصنيع غير المباشره ()

ب- نظام افضل لاداره ورقابة التكاليف عن طريق فهم الاحداث والنشاطات

المرتبطه بها ()

ج- لتحديد التكاليف الكلية للمشروع مما يساعد في عملية صنع قرارات فعالة ()

د- اخرى (حدد) -----

٤٥- عند احتساب اسعار بيع المنتجات الجاهزه اي من العناصر التاليه تؤخذ بعين

وشكرا جزيلآ لحسن تعاونكم ومساعدتكم في تعبئة هذا الاستبانة والله ولي التوفيق .